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PERSECUTION PERPETUATED:
THE MEDIEVAL ORIGINS OF ANTI-SEMITIC VIOLENCE IN NAZI GERMANY

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ABSTRACT

How persistent are cultural traits? This paper uses data on anti-Semitism in Germany and finds continuity at the local level over more than half a millennium. When the Black Death hit Europe in 1348-50, killing between one third and one half of the population, its cause was unknown. Many contemporaries blamed the Jews. Cities all over Germany witnessed mass killings of their Jewish population. At the same time, numerous Jewish communities were spared. We use plague pogroms as an indicator for medieval anti-Semitism. Pogroms during the Black Death are a strong and robust predictor of violence against Jews in the 1920s, and of votes for the Nazi Party. In addition, cities that saw medieval anti-Semitic violence also had higher deportation rates for Jews after 1933, were more likely to see synagogues damaged or destroyed in the 'Night of Broken' Glass in 1938, and their inhabitants wrote more anti-Jewish letters to the editor of the Nazi newspaper *Der Stürmer*.

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I. Introduction

From fertility to trust and corruption, there is a growing theoretical literature arguing that cultural norms are powerful determinants of individual behavior (Bisin and Verdier 2001, Tabellini 2008), and that they can persist over long periods (Acemoglu and Jackson 2011). There is also strong empirical support for parental investment creating long-term persistence of attitudes (Fernandez and Fogli 2009, Algan and Cahuc 2010), and for past events and institutional arrangements influencing norms and preferences today (Nunn and Wantchekon 2011, Guiso, Sapienza, Zingales 2008). What is less clear is how long cultural persistence can last, and if it matters for extreme forms of behavior, such as inter-ethnic violence.

In this paper, we examine the historical roots of anti-Semitism in interwar Germany. When the Black Death arrived in Europe in 1348-50, it was often blamed on Jews poisoning wells. Many towns and cities (but not all) murdered their Jewish populations. Almost six hundred years later, after defeat in World War I, Germany saw a country-wide rise in anti-Semitism. This led to a wave of persecution, even before the Nazi Party seized power in 1933. We demonstrate that localities with a medieval history of pogroms showed markedly higher levels of anti-Semitism in the interwar period. Attacks on Jews were six times more likely in the 1920s in towns and cities where Jews had been burned in 1348-50; the Nazi Party's share of the vote in 1928 – when it had a strong anti-Semitic focus – was 1.5 times higher than elsewhere.[1]

Germany's persecution of Jews during the early 20th century has been a topic of intense research interest. While some have argued that it can never be rationally explained (Levi 1979), others have pointed to underlying economic and political causes (Glaeser 2005, Arendt 1994, Cohn 2007). That a deep-rooted history of anti-Semitism was ultimately responsible for a wave of hatred has been argued by Goldhagen (1996). He observed that "... the most telling evidence supporting the argument that antisemitism has fundamentally nothing to do with the actions of Jews, and … nothing to do with an antisemite's knowledge of the real nature of Jews, is the widespread historical and contemporary appearance of antisemitism, even in its most virulent forms, where there are no Jews, and among people who have never met Jews." Several mechanisms for the perpetuation of hatred have been emphasized, including the role of religion. Passion plays, for example, often portrayed Jews as engaged in deicide (Glassman 1975). Anti-

[1] The NSDAP received 2.6 percent of the popular vote in 1928. It only developed into a mass movement after the onset of the Great Depression.

Semitic sculptures decorated churches and private houses, and book printing distributed these images widely.[2] Several tracts of Martin Luther are strongly anti-Semitic (Oberman 1984).

We explore the long-term persistence of inter-ethnic hatred by analyzing a new dataset consisting of a cross-section of more than 1,400 towns and cities in interwar Germany.[3] The majority of them was small, with a median population of no more than 18,000 inhabitants in 1925, and a few thousand at most in the Middle Ages. Marriage across towns and migrations were rare, which should have facilitated the persistence of cultural characteristics at the local level. For all these towns, we record if pogroms took place at the time of the Black Death. Several indicators shed light on interwar anti-Semitism. We compile data on anti-Jewish pogroms during the 1920s, votes for the Nazi Party (especially during its early years, when it was not yet a mass movement), readers' letters to a virulently anti-Semitic Nazi newspaper (*Der Stürmer*), attacks on synagogues during the 'Night of Broken Glass' (*Reichskristallnacht*) in 1938, as well as on deportations of Jews.

All these indicators suggest that localities with a history of pogroms in the Middle Ages also showed higher levels of anti-Semitism in the years after 1920. We demonstrate the strength of the link using both standard regression analysis, and by comparing matched pairs of cities based on geographical distance. We also examine the circumstances under which persistence weakens or disappears altogether. Some aspects of culture can change quickly, such as in the case of gays, or of premarital sex (Fernandez-Villaverde, Greenwood, and Guner 2010). We demonstrate that in our sample, persistence disappears for a subset of locations where the costs of discriminating against outsiders was particularly high: Members of the Hanseatic League, which specialized in long-distance trade, show no persistence of anti-Semitism. The same is true for towns and cities that experienced high rates of population growth between the Middle Ages and the early 20th century. This suggests that economic incentives as well as migration can overwhelm the influence of local customs and beliefs.

This paper contributes to the literature on the long-run effects of local culture. Alesina and La Ferrara (2005) have argued that cultural and religious fragmentation is robustly associated with important outcome variables, such as civil wars, corruption, and public good provision. Bisin and Verdier (2000) build a model of the dynamics of cultural transmission, and show under what

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[2] Churches from Cologne to Brandenburg contained (and many still contain) a sculpture of a so-called 'Judensau,' the image of a female pig in intimate contact with several Jews shown in demeaning poses (Shachar 1974). The same type of sculpture can also be found in Poland, Sweden, Switzerland, France, and the Low Countries.

[3] We will not be able to distinguish between anti-Semitism and a hatred of minorities in general – Jews were the single largest minority in Germany at the time.

conditions heterogeneity of ethnic and cultural traits can survive over the long run.[4] Tabellini (2008) examines interactions of individuals with different degrees of 'morality,' and shows how their proportion varies as a result of parental investment.

Recently, the historical roots of present-day conditions have attracted attention. Fernandez and Fogli (2009) show that the fertility of immigrants' children continues to be influenced by the fertility in their parents' country of origin. Algan and Cahuc (2010) demonstrate that inherited trust is a powerful predictor of economic performance. Guiso, Sapienza, and Zingales (2008) argue that free medieval cities in Italy still have higher levels of interpersonal trust today. There is also evidence that nationalities allowed to lend under Ottoman rule have higher bank penetration in the present (Grosjean 2011), that having been a member of the Habsburg Empire is associated with lower corruption in today's successor states (Becker et al. 2011), that the historic use of the plough in agriculture affects contemporaneous gender roles (Alesina, Giuliano, and Nunn 2011), that the effect of changing religious norms on literacy can be permanent (Botticini and Eckstein 2007), and that the slave trade in Africa led to permanently lower levels of trust (Nunn and Wantchekon 2011).[5] In a similar spirit to our paper, Jha (2008) argues that Indian trading ports with a history of peaceful cooperation between Hindus and Muslims saw less violent conflict during the period 1850-1950 and in 2002. We also connect with recent work looking at the long-run effects of 'deep' parameters such as technological starting conditions, genetic origin, and population composition (Spolaore and Wacziarg 2009; Comin, Easterly, and Gong 2010; Putterman and Weil 2010).

Relative to this literature, our main contribution is to show the persistence of a 'pure' cultural trait (i.e., without economic benefits) over the very long run.[6] Other studies conclude that economically beneficial features of culture – for example trust in the case of cities, or corruption for individuals – can persist once they become established. Economic gain and its cultural determinants, such as trust, are probably mutually reinforcing.[7] This is true, for example, of the Italian city states analyzed by Guiso, Sapienza, and Zingales (2008), as well as the work of Jha

[4] A more general model is Bisin and Verdier (2001). Cf. also the overview in Bisin (2010).

[5] Other important work includes Grosjean (2010), who analyzes attitudes towards violence in the US and their relation to a 'culture of honor' among Scottish and Irish settlers, the comparative work by Hackett Fischer (1989), and research by Durante (2010) who concludes that higher climatic variability since 1500 is associated with higher trust.

[6] The origins of anti-Semitic sentiment may or may not have had an economic dimension. We simply argue that it is unlikely that economic motives were crucial for transmission, given that Jews largely vanished from Germany for centuries after the Middle Ages.

[7] Aghion, Algan, Cahuc, and Shleifer (2010) build a model in which the level of trust and the regulatory environment mutually reinforce each other, giving rise to multiple equilibria.

(2008). In contrast, the perpetuation of racial hatred in Germany over centuries shows that cultural traits that are prima facie not economically beneficial can show similar persistence. Our finding is particularly striking given that Jews largely disappeared from Germany after the Middle Ages.[8]

We also contribute to the literature on modern anti-Semitism. In addition to the school of thought that argues for the transmission of a cultural trait over centuries, even in the absence of Jews themselves (Goldhagen 1996, Perednik 2003), there are 'functionalist' interpretations. These emphasize economic and social factors, such as the particular benefits from murdering money lenders (Cohn 2007). For recent episodes of anti-Semitism, some authors have emphasized the role of modernization. Increasing social mobility and civic rights are said to have heightened the fears of non-Jews about their social status (Arendt 1994; Almog 1990; Lindemann 2000). Where strong states imposed equality, anti-Semitism flourished; weak states saw no such reaction (Birnbaum and Kochan 1992). Political economy models of hatred focus on the incentives of 'entrepreneurs' in fostering misperceptions as a rallying cry for groups (Glaeser 2005). One alternative is the so-called scapegoat theory, which argues that Jews are typically blamed for misfortune in times of crisis (Ettinger 1980; Katz 1980; Fein 1987). All of these approaches have difficulties explaining the waxing and waning of anti-Semitism over time, as well as the differences in levels across countries (Brustein and King 2004). Our procedure is different. We use two events that lowered the country-wide threshold for violence against Jews – the Black Death and the rise of anti-Semitism after 1918 – and examine in which locations the hatred of Jews leads to extreme acts.

The plan of the paper is as follows. We first describe our data and the historical context and background of anti-Semitism in the Middle Ages. Section III presents our main empirical results. The robustness and implications of our findings are discussed in section IV. Section V concludes.

II. Data and Historical Context

We use data on anti-Semitism at two points in time – the medieval period, and the years 1920-1945. Our principal indicator for medieval violence against Jews is pogroms during the Black Death. A wave of Jew-burning swept through much of Western Europe when the Black Death arrived in 1348-50 (Cohn 2007). Germany is a particularly useful setting for our purposes due to

[8] From the 19th century onwards, Jews resettled in Germany in large numbers.

its political fragmentation. Elsewhere, Jews had often been expelled by central authorities before the Black Death.[9] There is rich variation in pogroms at the local and regional level in Germany. We can therefore compare medieval outbreaks of anti-Semitic violence with similar acts committed in the same location more than half a millennium later, between 1920 and 1945.

Pogroms and Jewish Settlements in the Middle Ages

Jews probably first settled in Germany during the Roman period.[10] The documentary record begins around the year 1000, when there are confirmed settlements in major cities like Worms, Speyer, Cologne, and Mainz (Haverkamp 2002). By the 14th century, there were nearly 300 confirmed localities with Jewish communities.[11]

Pogroms against Jews began not long after the earliest confirmed settlements were established. The crusades in 1096, 1146, and 1309 witnessed mass killings of Jews in towns along the Rhine. In addition, there is a long history of sporadic, localized, and deadly attacks. The so-called *Rintfleisch* pogroms in Bavaria and Franconia in the late 13th century saw the destruction of many communities (Toch 2003). In the same category are the *Guter Werner* attacks (1287) in the mid-Rhine area, and the *Armleder* pogroms (1336) in Franconia and Saxony (Toch 2010). Many of the pogroms unconnected with the plague or the crusades began with accusations against Jews for ritual murder, poisoning of wells, or host desecration.

By far the most wide-spread and violent pogroms occurred at the time of the Black Death. One of the deadliest epidemics in history, it spread from the Crimea to Southern Italy, France, Switzerland, and into Central Europe. The plague killed between a third and half of Europe's population between 1348 and 1350 (McNeil 1975). Faced with a mass epidemic of unprecedented proportion in living memory, Christians were quick to blame Jews for poisoning wells and foodstuffs. After the first confessions were extracted under torture, the allegations spread from town to town.

The Jews of Zurich were relatively fortunate – they were merely expelled. Despite an intervention by the pope and declarations by the medical faculties in Montpellier and Paris that the allegations of well-poisoning were false, many towns murdered their Jewish populations. In

[9] Jews had been expelled from England in 1290 and from France in 1306/22. They were then partly recalled to France, and finally expelled in 1359. Outbreaks of anti-Semitic violence also occurred during the Spanish expulsion of 1492.

[10] Throughout, we refer to Germany as the area under German control in 1938.

[11] There are good reasons to believe that better documentation, and not only a spreading of Jewish settlements, was responsible for this rise in numbers (Toch 2010).

Basle, approximately 600 Jews were gathered in a wooden house, constructed for the purpose, on an island in the river Rhine. There they were burned (Gottfried 1985). Elsewhere, some city authorities and local princes tried to shield 'their' Jews; few were successful. The city council of Strasbourg intended to save its Jewish inhabitants. As a result, it was deposed. The next council then arrested the Jews, who were burned on St. Valentine's Day (Foa 2000).[12] In some areas, peasants and unruly mobs set upon the Jews who had been expelled or tried to flee (Gottfried 1985).

The chronicles of towns that burned their Jews rarely provide an explanation. The same dearth of sources restricts the analysis of locations where no assaults are recorded. In some cases, it is not certain that Jews dwelled in the town at the time of the Black Death. But in many cases, we can be certain that Jews lived in towns which did not carry out attacks. In Halberstadt in central Germany, for example, transactions with Jewish money lenders are recorded right before and during the Black Death; there is no record of any violence. The most likely interpretation, and the one we subscribe to, is that in locations where Jews lived, but where no pogrom occurred, anti-Semitic sentiment was weaker. This resulted in less pressure by artisans and peasants on the authorities to burn or expel the local Jewish community.

We use the Germania Judaica [GJ] as the main source for the medieval period.[13] Initiated as a research project by the German Society for the Advancement of Jewish Studies in 1903, GJ was conceived as a comprehensive description of Jewish settlement history in the German Empire from the origins to the Congress of Vienna in 1814. Its three completed volumes begin with the earliest known Jewish settlements in Germany, and end in 1519. We principally use data from vol. 2, covering the period 1238 to 1350. We supplement this list with information from the recent work by Alicke (2008). Doubtful cases are not included in our list of Jewish settlements.

The scholars producing GJ drew on a number of original documents and secondary works. An important source are the so-called *Memorbücher*. These collections, compiled in the Middle Ages, contain remembrances of dead community members and prayers. From the 13th century onwards, they developed into a particular literary form. Some of them contain more detailed information, such as lists of victims during particular outbursts of violence (e.g., during the 1348-50 pogroms, or during the first crusade). Many of the plague pogroms are recorded in the

[12] The case is disputed (Cohn 2007). Another famous example of elites shielding Jews involves the Duke Albrecht of Austria. He initially intervened to stop the killing of Jews. Eventually, faced with direct challenges by local rulers to his authority, and under orders of his own judges, he had all the Jews living in his territories burned (Cohn 2007). There is substantial uncertainty about the extent of elite involvement in the mass killings of Jews in general (Haverkamp 2002).

[13] Avneri (1968).

Martyrologium of the Nürnberg Memorbuch (Salfeld 1898). Several other communities, such as Deutz, also compiled their own versions. As our indicator for violence against Jews in the Middle Ages, we code whether there was a pogrom in 1348-50. A typical entry in GJ reads as follows:

> Heiligenstadt – […] fortified by 1278, later capital of the principality of Eichsfeld, today Kreisstadt in Thuringia.
>
> At the time of the Black Death, the Jews of Heiligenstadt were systematically killed. Survivors were recorded in Erfurt in 1365, and in Frankfurt in 1389. Heiligenstadt only admitted Jews again in 1469.

The overwhelming majority of towns with Jewish populations witnessed mass killings in 1348-50. Of 299 observations, 218 (73%) recorded pogroms. The map in Figure 1 shows the frequency of pogroms in 1348-50 in Germany in its 1938 borders. Areas where every single town saw violent attacks on Jews are shown as black; the others are in varying shades of blue, depending on the frequency of pogroms. Areas without data reflect those parts of Germany where there are no records of medieval Jewish settlements. While there are white spots on the map, the information derived from GJ covers all the major parts of Germany. The Rhineland, Franconia, and Hesse stand out as areas with a high frequency of attacks.

[insert Figure 1 here]

At the same time, even at the local level, the frequency of attacks varied substantially. The detailed map is taken from Haverkamp (2002) and shows parts of South-West Germany. Cities and towns with a confirmed Jewish settlement are marked with a dark grey circle; those that suffer a pogrom during the Black Death are indicated by a red square. Towns in immediate proximity to each other – all with Jewish settlements – experienced a very different history of medieval anti-Semitic violence. While the Jews of Göppingen, for example, were attacked, those in Kirchheim escaped unharmed. The same contrast is visible for Reutlingen and Tübingen, or between Rottenburg and Horb. These towns are no more than 25 km apart. This is the level of variation at the local level which we will exploit in the quantitative analysis section of this paper.

Describing the history of Jews in Germany between the Middle Ages and the 19th century goes beyond the scope of this paper. After the repeated pogroms of the medieval period, Jewish communities had largely disappeared from Germany after the 15th century. They did not return until the 17th century. Mercantilist rulers often welcomed Jewish commercial and financial expertise (Burnett 1996). From the 18th century, Jews once more settled in Germany in larger numbers. Their rights were severely limited until the large-scale emancipation of the Jews in the

19th century. By the late 19th century, Germany was home to numerous Jewish communities. While the early years after the founding of the Empire saw a rise in anti-Semitism, anti-Jewish parties had dwindled to near-insignificance by 1914 (Wawrzinek 1927, Levy 1974).

Anti-Semitism in Germany after World War I

Anti-Semitism in Germany grew during and after World War I. During the war, right-wing organizations spread rumors that Jews were not serving at the front, and were engaged in war-profiteering. The German Army High Command ordered a count of all Jews in uniform, allegedly to counter such claims, but never published the results. After the collapse of 1918, Jews were wrongly blamed for defeat in World War I. This led to another increase in the level of anti-Semitic agitation. Jews had served in high office, including Walther Rathenau, who coordinated the supply of raw materials for the war. Matthias Erzberger, another prominent politician and a Jew, opposed the war openly from 1917 onwards. He signed the humiliating armistice with the Entente in 1918. As chairman of the armistice commission and later, as Finance Minister, he implemented many of the provisions of the Versailles treaty, including a large hike in taxes to pay for reparations.

In addition, Jews provided some of the leadership for the German revolution of 1918 and attempts to establish socialist regimes thereafter. In Munich, Kurt Eisner proclaimed a Soviet Republic; Gustav Landauer and Eugen Levine held positions of great influence. Rosa Luxemburg attempted to organize a revolution along Bolshevist lines.[14] The ultra-left bid for power was eventually thwarted by demobilized army units. Radical right-wing groups quickly seized on the involvement of leading Jewish politicians in the revolution, the armistice, and the peace treaty of Versailles. The (incorrect) claim that Germany's army had been 'stabbed in the back' and not been defeated in battle pointed the finger at the revolution of 1918 as the key factor that lost the war.

Anti-Semitism was already widespread before the Nazi party's rise to power in 1933. Student associations would often exclude Jews. The desecration of Jewish cemeteries occurred with some frequency. Synagogues were besmirched with graffiti; politicians made anti-Semitic speeches (Walter 1999). In many hotels and restaurants, Jews were not welcome; elsewhere, entire towns declared themselves to be open for Christian guests only (Borut 2000).

[14] Luxemburg and Liebknecht led the USPD, the ultra-left wing of the socialist party (SPD). Liebknecht was widely (and incorrectly) believed to be Jewish.

According to the census of 1925, there were over 560,000 Jews living in Germany. The vast majority (66%) resided in the six biggest cities; the rest was evenly divided between smaller cities and over 1,000 towns and villages with a population size of less than 10,000. For the regional patterns of 20th century violence, our main source is Alicke (2008). From the wealth of information in his Encyclopaedia of Jewish Communities in German-speaking Areas, we focus on evidence about anti-Semitic violence in the 1920s and 1930s. Pogroms before 1933 were rare, but not unknown. We find 37 communities that engaged in major attacks on Jews before the Nazi rise to power. To qualify as such, there has to be physical violence.[15]

During Weimar Germany's period of economic decline and social unrest after 1918, numerous right-wing parties with anti-Semitic programs sprang up. Hitler's National Socialist German Workers Party (NSDAP, aka the Nazi Party) was only one of many, but amongst the most radical. The German National People's Party (DNVP) continued the anti-Semitic rhetoric of the Imperial era (Hertzman 1963). Closest to the NSDAP was the German People's Freedom Party (DVFP), which split from the DNVP in 1922 because of the latter's lack of radical anti-Semitism. We use King et al.'s (2008) election data as well as commonly used control variables.

During its early years, the Nazi Party emphasized its extremist world view and anti-Semitic plans, and tried to seize power in the so-called Beerhall putsch. Afterwards, the Nazi Party was banned. The DVFP absorbed much of the Nazi vote in the May 1924 election (Striesow 1981).[16] We find a correlation of .67 between the voting results of the DFVP in 1924 and the Nazi Party in 1928, significant at the 1% level. Readmitted to the polls in 1928, the Nazi Party won 3.2 percent of eligible votes in our sample.[17] And yet, in some localities, as many as 34 percent of voters supported the party's program, while in others, not a single vote was cast in favor of the NSDAP.[18]

The Nazi party's focus changed later, when it tried to garner middle class support. To this end, it tried to appear 'respectable;' leaders underlined their determination to win power by legal means.[19] The change in tactics is generally dated after 1928. During the Great Depression, the party increasingly sought to exploit economic and social issues. Anti-Semitism never

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[15] Based on Alicke (2008). Political agitation and the desecration of Jewish property alone is not counted under this heading.

[16] Members of the banned NSDAP reconstituted themselves as a party under the label NSFP, which put forward joint lists with the DVFP. The NSFP later merged with the NSDAP when the ban on the latter expired (Levy 2005).

[17] Nationwide, the NSDAP received 2.6% of the vote. The difference between our sample mean and the nationwide average is explained by the fact that our sample includes only cities.

[18] The latter occurred in 7 cities in our sample – all with less than 2,000 eligible voters.

[19] Stachura (1978) emphasizes decisions after the election of 1928 as a turning point; Broszat (1960), Bullock (1991), and Bracher (1970) suggest that the decisive changes occurred in 1929.

disappeared from the party's manifestos and propaganda, but it was toned down. Oded Heilbronner (2004), summarizing the main research trend over the last few decades, concluded:

> Until the 1960s most studies of the Nazi Party and National Socialism argued that anti-Semitism was an essential factor in explaining Nazi success before 1933. But in recent decades, numerous studies have shown that anti-Semitism was probably somewhat underrepresented in Nazi Party activity and propaganda in the period before 1933, particularly in the last years before Hitler became Chancellor.

After the 'turning point' in 1928 (Stachura 1978), the NSDAP became largely a party for disaffected protest voters, who may or may not have shared its more radical ideas. As the party gained electoral appeal, the distribution of votes by district increasingly approximates a normal distribution – locations with radical views are less easily identified as the party's mass support swamped the factors that drove its early results. Figure 2 gives an overview of how voting outcomes changed over time. We plot vote shares for the DVFP in 1924, and for the NSDAP in 1928, 1930, and 1933. After 1928, a continuous shift of the distribution to the right is apparent. At the same time, relative differences between the average and the most fervently pro-Nazi district become harder to identify. For these reasons, we regard results until 1928 as particularly useful indicators for a local population's ideological orientation. We will also analyze the post-1928 election results.

[insert Figure 2 here]

In Figure 3, we show the geographical distribution of votes for the Nazi Party in 1928. Bavaria, the upper Rhine region, as well as Schleswig-Holstein are areas of high support. As in Figure 1, we see ample variation at the regional level, with areas of very low vote shares immediately adjacent to those with high proportions of votes for the Nazi Party.

[insert Figure 3 here]

In addition, we collect data on the 'Night of Broken Glass' (*Reichskristallnacht*). While much of the violence was centrally directed, it required local co-operation. In a number of towns and cities, there were no attacks. We collect information from Alicke (2008) on whether synagogues were damaged or destroyed in 1938. The local record is not always clear on why this happened. In a handful of cases, local mayors refused to participate, or stopped SA troopers from burning down the synagogue, etc. Historical narratives (Alicke 2008) often emphasize 'technical' constraints, such as fire hazard, or ownership issues. We do not take a view if these were a pretext. However, we see no good reason why there should have been fewer practical difficulties in those German municipalities that participated in medieval pogroms.

Next, we use data on deportations of German Jews to assess the strength of anti-Semitic sentiment in each town. The German Federal Archive (*Bundesarchiv*) has compiled detailed data from available records, at the level of each municipality, for deportations, including the name, date of birth, date of deportation, destination, and (where known) ultimate fate of each individual.[20] Mass deportations to the East began only in 1941. As early as 1938, Polish Jews living in Germany were rounded up and transported to the German-Polish border, and then forced to cross. Before that date, and during the pogroms of the 'Night of Broken Glass,' Jews from some towns were deported to camps in the Reich.

In our empirical analysis, we examine how many deportations took place, conditioning on the number of Jews living in a town. Remaining differences reflect, in our view, local sentiment. This is because many rules for the treatment of Jews were anything but clear-cut. Deportations could occur at the instigation of local town and party officials; exemptions (for 'quarter Jews,' i.e., those with only one Jewish grandparent; for veterans of World War I; or for those married to gentiles) could be applied for and needed to be approved. Under these conditions, local administrators could find themselves in a position of great power. Lobbying could postpone the day of reckoning for some Jews; for others, denunciations spelled an early transfer to the camps. Finally, while the numbers rescued were not large, help from local neighbors and friends was decisive for Jews trying to hide or flee abroad.

We derive our final indicator of anti-Semitic sentiment from the Nazi newspaper *Der Stürmer*. Published under the motto 'the Jews are our misfortune,' it was by far the most anti-Jewish of all the Nazi newspapers. *Der Stürmer* typically mixed tales of Jewish ritual murders with dark conspiracy theories. It also contained a section with letters to the editor (chosen by the editorial staff for the interest and attitude of the letter received). A typical case involves a mixture of denunciation and pedagogical questions about how bad it is to mingle with Jews. For example, a Hamburg schoolgirl wrote to the newspaper in 1935 (Hahn 1978):

> Dear Stürmer!
> I attend a well-known higher secondary school in Hamburg. Regrettably, we still have many Jewish fellow students. Equally regrettably, many German girls are still close friends with these Jewish girls. On special occasions, when we wear [BDM][21] uniforms in school, these girls walk arm-in-arm with their Jewish friends. You can imagine what

[20] Bundesarchiv (2007). The register of names and places is available online at http://www.bundesarchiv.de/gedenkbuch/

[21] BDM-*Bund Deutscher Mädchen* [Association of German Girls]. This was the equivalent of the Hitler Youth for girls.

> an impression this gives! When confronting the girls in question, they say "stop instigating hatred all the time! Jews are human beings, too, and 'Eva' is a 'modest', 'decent', 'nice' girl!" […] I consider these friendships very dangerous, since the Jews and their corrupting ideas destroy the souls of the girls slowly but surely. Girls at 14 are too innocent to realize the true intentions of their Jewish "girlfriends". I am myself barely 15 years old…

We use three years of letters to the editor of *Stürmer*, from 1935 to 1938, and code the location of the letter-writer. We then calculate the sum of letters in three categories – those published as article-equivalents (an obvious sign of approbation by the editors), those denouncing named individuals still talking to or having business dealings with Jews, and those asking questions about Jews (e.g., the number of Jews remaining in a city, etc.). Of the 1,401 towns in our dataset, 888 (63%) recorded not a single letter sent to the *Stürmer*. At the other end of the distribution, we find cities like Nürnberg (where the *Stürmer* was edited, and NSDAP party congresses were held) with 73 letters, Munich (77, where the party was founded and the Beerhall putsch took place), Cologne (110), and Berlin (354).[22]

Data overview

Throughout the empirical analysis, we use two datasets. The full sample contains all the municipalities with 20th century data on Jewish population and anti-Semitic outcome variables, based on the work by Alicke (2008). The other is a subset of the full sample, where we exclude all towns and cities for which there is no direct evidence of Jewish settlement in the 14th century (restricted sample). The full sample contains more than 1,400 cities within the 1938 borders of Germany; for 299 of these, Jewish settlements before the Black Death are documented, constituting the restricted sample. The appendix provides a more detailed description of our data.

Table 1 gives an overview of the main variables in the full sample. The average town has a little over 20,000 inhabitants, but the largest city in the dataset (Berlin) has over 4.4 million. Jews are typically a small part of the population (2.3%).[23] In the average city, about half of the population was Protestant, and most of the remainder Catholic. In almost 80% of locations, there was a synagogue or a dedicated place for religious worship by Jews in 1933. About 2.5 percent of cities

[22] The veracity of letters such as the one cited in the text may well be called into question. However, the *Stürmer* Archive (preserved in the City Archive of Nuremberg) contains many letters of this type, as well as of other denunciations.

[23] In Germany as a whole, Jews accounted for less than one percent of the total population. Since many Jews lived in urban centers, it is not surprising that our urban sample shows a higher proportion than the nation as a whole.

witnessed pogroms during the 1920s. The average city gave 3.2% of votes to the NSDAP in 1928, and 6.9% to the Völkisch-Nationalist DVFP in 1924. For both elections, there is substantial variation from municipality to municipality. The average town reported 113 deportees, ranging from 0 to 55,807. The number of anti-Semitic letters to the *Stürmer* between 1935-38 shows a range from 0 to 354 (which we scale by town/city population in our empirical analysis). In more than 80% of cities that had synagogues or prayer rooms, these were damaged or destroyed during the 'Night of Broken Glass.' Of the overall sample, 26.2% (367 cities) have confirmed records of Jewish settlement in the Middle Ages; 17.2% of the sample witnessed pogroms during the Black Death.[24]

[insert Table 1 here]

In Table 2, we explore some basic correlation patterns in our data. We find that all our indicators of 20th century anti-Semitism are significantly and positively correlated with medieval pogroms. In addition, the six variables for modern anti-Semitism are mostly positively correlated with each other.

[insert Table 2 here]

Next, we examine the comparability of localities with and without Black Death pogroms. We first use data on the economic development of German cities in the Middle Ages. The date of incorporation, and of the first market charter capture this dimension.[25] Differences are small. Places with pogroms were first incorporated in 1272; those without them, in 1284. The same is true for first market charter – 1315 vs. 1395. Second, we compare long-run economic development for locations with and without pogroms. Table 3 reports city growth over two periods – 1300-1933 and 1750-1933.[26] Neither the full sample (columns 1-2), nor the restricted sample (columns 4-5) show statistically significant differences in growth rates between towns and cities with and without pogroms. Finally, the share of Jews in the population in 1933 is not significantly different, either (columns 3 and 6). This suggests that Jews did not systematically avoid settling in locations where medieval pogroms had occurred. Overall, there is little reason to question the comparability of the towns with and without pogroms in 1349.

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[24] For 132 cities, the historical record on Black Death pogroms is ambiguous or explicitly listed as "unknown" in GJ. We code these observations as missing, which explains the smaller number of observations for POG^{1349}. This leaves 299 cities with confirmed medieval Jewish communities and information on Black Death pogroms. These constitute our restricted sample.

[25] We thank Davide Cantoni and Noam Yuchtman for sharing their data with us.

[26] We use two periods for growth since there are only a few observations on population size in 1300. We investigate outcome variables for which city-level (as opposed to precinct-level) data are available.

[insert Table 3 here]

III. Empirical Results

In this section we present our main results. We argue that pogroms during the Black Death in 1348-50 reflect medieval anti-Semitism. As described in Section II, the Black Death was a common shock that lowered the overall threshold for violence against Jews. In some cities, citizens responded with pogroms, while in others, Jews were unharmed. Similarly, the general upsurge in anti-Semitic sentiment in Germany after World War I made the expression of anti-Semitic attitudes and violent acts against Jews more likely. We demonstrate that across a range of indicators, towns and cities with a medieval history of violence against Jews also engaged in more persecution in the 1920s and 1930s.

Specification of Regressions and Estimation Techniques

We use two empirical strategies. First, standard regression analysis with a variety of estimators, from OLS to Poisson. Second, we employ geographical matching to compare nearby towns with and without Black Death pogroms. In this way, we control for unobserved local characteristics. Regressions take the following general form:

$$AS_i = \alpha + \beta \cdot POG_i^{1349} + \gamma X_i + \varepsilon_i \,,$$

where AS_i represents the various proxies for anti-Semitism in the Weimar Republic and Nazi Germany at the city level i, POG_i^{1349} is an indicator variable for Black Death pogroms, and X_i is a vector of control variables. Depending on the indicator, we allow for different distributions of the error term ε_i, instead of limiting ourselves to normal ones only (OLS). Where the outcome variable is a dummy, we employ Probit estimation, and where its distribution is skewed, we use Poisson ML estimation. We also use propensity score estimation, matching by observed city characteristics.

In addition, we match towns by geographic location, based on longitude and latitude. As a rich literature in labor economics (Card and Krueger 1997) has argued, comparing places in close proximity can help to overcome omitted variable problems. We thus compare directly towns that

are no more than a few kilometers apart, where one saw a pogrom in 1349 while the next one(s) did not.[27]

Full vs. Restricted Sample

The interpretation of β depends on the sample used. For the full sample, β describes the average increase in 20th century anti-Semitism (AS_i) in cities with Black Death pogroms, as compared to *all* cities without pogroms in 1349. The comparison thus includes cities without documented medieval Jewish communities. In other words, the control group contains cities for which 'treatment' (i.e., Black Death pogroms) was probably impossible because there was no Jewish settlement. The restricted sample addresses this issue. Here, β compares cities with Black Death pogroms with those without violent attacks on their confirmed Jewish population in 1349. Results are similar across datasets.

Overview of results

We begin by demonstrating a strong relationship between attacks during the Black Death and pogroms in the 1920s, as well with votes for the Nazi Party (NSDAP) in May 1928. As discussed in Section II, the Nazi Party had a strong focus on anti-Semitism until about 1928. Medieval pogroms also predict votes for the anti-Semitic DVFP in 1924, when the Nazi Party was banned. In addition, we find strong results for the deportations of Jews after 1933, as well as letters to the editor of the particularly anti-Semitic Nazi newspaper *Der Stürmer*. Finally, we turn to assaults on synagogues during the 'Night of Broken Glass' in 1938. While the majority of synagogues was attacked, the local variation again reveals a strong relationship with pogroms in 1349.

A Comparison of Two Cities

To fix ideas, let us compare two cities. We will focus on Würzburg, population 101,000 in 1933, with Aachen, population 162,000. Würzburg had a Jewish community since 1100 (Alicke 2008), and Aachen since 1242 (Avneri 1968). The former saw a pogrom during the Black Death; the latter did not.

Würzburg's Jews suffered persecution early. A pogrom in 1147 destroyed the community. During the *Rintfleisch* pogroms in 1298, some 800 Jews died. During the Black Death, the bishop's pro-notary, Michael de Leone, recorded his feelings in 1349 in two poems. He

[27] More precisely, Black Death pogroms occurred between 1348 and 1350. For ease of exposition, we refer to them as pogroms in 1349 in the following.

concluded that 'the Jews deserved to be swallowed up in the flames' (Cohn 2007). In Würzburg there were also pogroms in the 1920s; the *Stürmer* published 23 letters from readers (a frequency 10 times higher than average). Würzburg had a Nazi share of the vote in May 1928 of 6.3%, when the mean district recorded 3.4%. We know that 943 Jews were deported after 1933 (out of a community of 2,145 in 1933, equivalent to 44%).[28]

The city of Aachen provides a stark contrast with Würzburg. Jews were first recorded in 1242, paying taxes. For the 13th century, several Jews born in Aachen are recorded in the lists of the dead of other towns. The town had a 'Judengasse' [street for Jews] in 1330. For Aachen, the *Germania Judaica* explicitly states that there is no record of anti-Semitic violence, neither before the Black Death nor during it. This is despite the fact that, in 1349, citizens of Brussels wrote to the Aachen authorities urging them "to take care that the Jews don't poison the wells" (Avneri 1968). Aachen also saw no pogroms in the 1920s. The *Stürmer* published only 10 letters (or less than half the number for Würzburg, despite a population that was 60% larger).[29] Only 1% of voters in Aachen backed the NSDAP in 1928. 502 out of 1,345 Jews are known to have been deported, or 37% of the total. Next, we investigate how general these differences are.

Pogroms in the 1920s

Pogroms in the 1920s were infrequent and highly localized affairs. While embedded in a broader context of anti-Semitic agitation and acts, such as attacks on shops, we only count recorded acts of physical violence. Cities with Black Death pogroms had, on average, significantly more pogroms in the 1920s than cities without pogroms in 1349. As Table 4 shows, our full sample comprises 1,245 cities with observations on pogroms in both 1349 and the 1920s (panel A). In 294 of these, there were Jewish communities prior to the Black Death (panel B). In 73% of these localities (215 out 294), the Black Death coincided with pogroms. The 1920s saw 33 pogroms in Weimar Germany overall. The frequency of attack was 8.4% in the 215 cities with pogroms in 1349, versus 1.5% in the remaining 1,030 cities without medieval Jewish settlements and/or Black Death pogroms. The fact that a town experienced a medieval pogrom thus raises the probability of witnessing another pogrom in the 1920s by a factor of approximately 6. The contrast is even more striking if we focus only on localities with confirmed medieval

[28] This does not imply that 56% were not deported. The files of the Bundesarchiv are not perfect, and especially in the later stages of the war, record-keeping degenerated. Also, the survival of evidence was less than assured at a time of numerous bombing-raids, etc. In addition, emigration of Jews before 1939 likely accounts for much of the gap.

[29] In both cities, synagogues were destroyed in 1938.

communities of Jews (panel B of Table 4): 19 pogroms were reported for the 294 cities, and out of these, 18 occurred in cities that also saw Black Death pogroms.

[insert Table 4 here]

Table 5 reports regressions of pogroms in the 1920s on Black Death pogroms. There is a positive and significant association both for the full sample (columns 1 and 2) as well as for the restricted sample (columns 3-6). The effect is quantitatively important, with Black Death pogroms increasing the probability of 1920s pogroms by approximately 7 percent, from roughly 1% to more than 8%. Both magnitude and significance are robust to controlling for population, the percentage of the population that is Jewish, as well as the share of Protestants.[30] We add the latter to the list of exogenous variables because Protestant regions on average were more prone to vote for the Nazi Party (Falter 1991). As columns 5 and 6 show, both Probit and propensity score matching estimation confirm the OLS results.[31]

Finally, columns 7 and 8 give the results for geography-based matching in the full and restricted sample, respectively. The mean and median distances between matched cities are low – around 10-25 km.[32] The distance is shorter in the full sample where more potential matches are available. We find significant effects, of a similar magnitude as in the previous specifications. This strongly suggests that our findings are not driven by unobserved heterogeneity at the local level.

[insert Table 5 here]

While a history of medieval violence against Jews is associated with statistically significant and large shifts in the probability of another pogrom, the correlation is not perfect. Not all towns that burned their Jews in 1348-50 saw attacks in the 1920s – the majority did not. Many factors can reduce the extent to which anti-Semitic attitudes survive in one location. At the end of the empirical results section, we examine some of the city characteristics that systematically reduce persistence.

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[30] Where we do not have city- or town-level observations for control variables, we use precinct-level data. Standard errors are clustered at the precinct level.

[31] Following Abadie et al. (2004). We use 4 matches for propensity score estimation based on control variables. This offers the benefit of not relying on too little information, while it avoids incorporating observations that are not sufficiently similar. Results are very similar when changing the number of matches.

[32] In order to match cities that are as close to each other as possible, we restrict the number of matches to two. We effectively compare each city that had a Black Death pogrom with the two nearest cities that did not. When increasing the number of matches to four – as in the matching based on controls in column (6) – the results are very similar, while distance increases by about one half in both full and restricted sample.

Election Results

We now turn to parliamentary elections during the Weimar Republic. The May 1928 election is arguably the most reliable indicator for anti-Semitism because the NSDAP emphasized the anti-Semitic and radical side of its program strongly in the early- and mid-1920s. Thereafter, it aspired to greater respectability in the eyes of middle class voters, the NSDAP toned down this part of its ideology. Table 6 shows the outcomes of four elections between 1924 and 1933, divided into cities with and without Black Death pogroms. Panel A presents the results for the full sample, while panel B is restricted to cities with medieval Jewish population. In the two earlier elections, vote shares for the anti-Semitic DVFP and NSDAP are more than one percentage point higher in cities with pogroms in 1349.[33] In the 1928 election, this means that the NSDAP added more than a third to its typical vote share in cities with pogroms in 1349. Those numbers hold for both the full sample and the restricted sample.

[insert Table 6 here]

Table 7 shows the corresponding regressions. Column 1 reports the effect of medieval pogroms on NSDAP votes for all cities in our sample; column 2 adds a variety of controls. Columns 3 and 4 repeat this exercise for the restricted sample. In all cases, we find a significantly positive correlation, and its magnitude indicates that the NSDAP vote was approximately 1.5% higher in cities with anti-Semitic violence in 1349. Here, the NSDAP added more than one third to its average vote share of approximately 3.5%. The control variables show that Protestants voted in greater numbers for the NSDAP than the average population, confirming Falter (1991).[34] The average share of Protestants is about one half in both the full and the restricted sample. According to the point estimates in columns 2 and 4, an increase of the share of Protestants by one standard deviation (.33) raises the NSDAP votes by about 1 percentage point – an effect slightly smaller than that of medieval pogroms. Workers typically voted for the Social Democrats or the Communists (Childers 1983). Accordingly, we find a negative and significant coefficient on the percentage of blue collar workers. An increase by one standard deviation (.075) is associated with a 1% lower NSDAP vote share. Finally, the percentage of Jews in the population is not significantly correlated with NSDAP votes in 1928.

[insert Table 7 here]

[33] In 1924, the NSDAP was officially banned and ran candidates with the DVFP.
[34] Other authors attribute the relative strength of the NSDAP in Protestant areas to its weakness in proposing policies that could have appealed to farmers in Southern (Catholic) areas (King et al. 2008).

Column 5 shows the results for a Poisson maximum likelihood regression because the distribution of NSDAP votes in 1928 is heavily right-skewed (see Figure 2). Following Wooldridge (2002), linear models may not be appropriate for 'corner-solution' specifications, where a significant mass of the non-negative observations is close to zero. The ML results confirm our earlier findings. The estimated coefficient implies that the average effect of a pogrom in 1349 on NSDAP votes in 1928 is .463×.039=.0181, where .039 is the average vote (panel B of Table 6). In column 6, we use Propensity Score Matching (based on the previously used control variables) to estimate the average treatment effect of Black Death pogroms. This addresses the concern that covariates influence both treatment (pogroms in 1349) and response (anti-Semitism in Weimar Germany). This methodology confirms our results in terms of magnitude and significance.

To illustrate the strength of our findings, consider the two towns of Königheim and Wertheim. They are 10.3 km apart and had populations of 1,549 and 3,971 in 1933, respectively. Both had a Jewish settlement before the Black Death. Königheim did not see a pogrom during the plague, but Wertheim did. The NSDAP received 1.6% of valid votes in Königheim in 1928; in Wertheim, it received 8.1%. The analysis in columns 7 and 8 generalizes this type of comparison by matching all towns in our restricted dataset to their two nearest neighbors with a different history of medieval anti-Semitic violence, using their GPS coordinates. The corresponding results confirm the statistical significance and magnitude of the previous estimates.

Table 8 repeats the same regressions for the German Völkisch Freedom Party (DVFP) in May 1924. We find similar results to those for NSDAP votes in 1928. On average, Black Death pogroms increase the DVFP vote by 2-3 percentage points. To put things in context, in the sample as a whole, the DVFP polled 6.9% in 1924.[35] The results with control variables show strong and significant increases in the vote share for the DVFP where medieval pogroms occurred. These findings are confirmed when we use Poisson maximum likelihood estimation (column 5), standard matching estimation (column 6), or matching by geography (columns 7 and 8).[36]

[insert Table 8 here]

[35] The coefficient on pogrom 1349 is insignificant in the specification in column 3, where the fit is also very low. Once additional controls are included, improving the R^2, the variable becomes again significant.

[36] Using the average vote corresponding to the restricted sample (panel B in Table 6), the average effect of a pogrom in 1349 on DVFP votes in 1924 is .266×.086=.023, according to the Poisson ML estimate in column 5.

Next, we analyze the correlation of Black Death pogroms with NSDAP election results in 1930 and 1933. We find that the effect becomes weaker in 1930 and vanishes in 1933. Table 9 shows that the estimated coefficient is still positive and significant in the 1930 election for two out of four specifications. The magnitude of the effect is unchanged as compared to 1928, despite the fact that the NSDAP won about five times more votes in 1930 (see Table 6). This suggests that the number of Nazi voters with historically rooted anti-Semitic motives did not grow during the rise of the NSDAP. For 1933, the coefficient becomes negative and insignificant for all except the full sample OLS (column 5), where it is marginally significant. Because of the declining importance of anti-Semitic agitation for the NSDAP after 1928, it is easy to rationalize the declining correlation with medieval pogroms. In addition, as the party received an ever larger share of the popular vote (see Figure 2), it becomes more difficult to identify extreme local attitudes.

[insert Table 9 here]

Deportations, Stürmer letters, and assaults on synagogues

We now turn to additional indicators of anti-Semitism in Nazi Germany. We begin with deportations of Jews between 1933 and 1944. While the result of a centrally directed policy, deportations in any one town and village partly reflected the level of hostility shown by local authorities, as well as support or denunciations by neighbors and acquaintances.

Table 10 reports regressions of deportations during the Nazi regime on Black Death pogroms. We use data on deportations at the city level for the period from 1933-45, controlling for initial Jewish population – measured in 1933 (panel A) and 1939 (panel B). The OLS estimate for the full sample in column 1 is significantly positive, suggesting an increase in deportations by 13.7% in cities with medieval pogroms. In the restricted sample, we find a coefficient of 14% (column 2). The coefficient is statistically insignificant, which is, however, not surprising. In addition to the reduced sample size in column 2, the deportation variable is strongly right-skewed, with a large share of zero or close-to-zero observations (this holds even for the natural logarithm, as used in columns 1-4). Thus, the OLS estimator is probably inappropriate (Wooldridge 2002). In columns 3 and 4, we use the matching estimator, which does not rely on a particular probability distribution. The results are positive and highly significant. In addition, we use Poisson ML estimation in columns 5 and 6. This avoids log-linearizing the dependent variable and thus preserves the higher moments of the distribution (Silva and Tenreyro 2006; Santos Silva, Tenreyro, and Windmeijer 2008). This specification also shows a strong positive effect of Black Death pogroms on deportations in Nazi Germany. On average, 211 Jews were deported from

cities in the restricted sample. Thus, the coefficient of .239 from the ML estimation implies that the difference in deportee numbers is more than 50 (i.e., 24 percent) for cities with vs. without pogroms in 1349. Matching by geography in columns 7 and 8 confirms our results.[37]

[insert Table 10 here]

After 1933, more than half of Germany's Jews emigrated. This creates a potential issue with the results in panel A. More anti-Semitic tendencies may have triggered more emigration before 1939, and thus fewer deportations thereafter. To address this, we repeat the analysis, controlling for the remaining Jewish population in 1939. Results are very similar overall, as panel B of Table 10 shows.[38] In particular, the OLS results in columns 1 and 2 suggest an even larger effect than in panel A – about 37% more deportations in cities with Black Death pogroms. A simple way to illustrate our results is to compare deportations from towns and cities with and without 1349 pogroms graphically (Figure 4). We plot the residual of a regression of the log of the number of deportees on the log of Jewish residents in 1939. The distribution for cities with Black Death pogroms is shifted sharply to the right, indicating that their Jewish inhabitants were deported more often.

[insert Figure 4 here]

Next, we turn to letters to the editor of the Nazi newspaper *Der Stürmer*. In towns with Black Death pogroms, there was one letter sent to the editors for every 4,064 inhabitants; in towns without a pogrom, the frequency falls to one per 5,032. Table 11 shows that the correlation between 1349 pogroms and the number of *Stürmer* letters is significant in the full, but not in the restricted sample under OLS. Again, the dependent variable is heavily right-skewed; OLS may not be appropriate. Columns 3 and 4 therefore report matching estimation results, and columns 5 and 6 use Poisson ML estimation. Both methodologies find a strong positive effect, and the matching by geographic location in columns 7 and 8 shows the same results.[39] *Der Stürmer* received 10-27% more letters, after controlling for population, from cities with Black Death pogroms. Both the size of a city (as expected) and of the Jewish population also go hand-in-hand with more *Stürmer* letters. The estimated impacts are sizeable. For example, a doubling of Jewish population is associated with 26-33% more *Stürmer* letters, similar to the result for medieval pogroms (columns 1 and 2).

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[37] Because deportations are conditional on the initial Jewish population, we also use the number of Jews in 1933 as a matching variable. This creates matches with greater distance as compared to previous estimates.

[38] The sample size is reduced because some smaller towns had lost (or did not report) their Jewish population in 1939.

[39] Distances are slightly larger than above because we also match by city population.

[insert Table 11 here]

Finally, we examine assaults on synagogues during the 'Night of Broken Glass' on 9 November 1938. We limit our analysis to localities that were home to synagogues, and find that towns with a history of pogroms had a markedly greater tendency to attack. Table 12 shows that of 972 cities with synagogues in 1938, 245 had Jewish communities in the Middle Ages. In the sample as a whole, 94.7% of cities with medieval pogroms saw synagogues damaged or destroyed in the 'Night of Broken Glass.' In cities without Black Death Pogroms, the corresponding figure was substantially lower – 79.8%. When restricting our sample to the 245 cities that had both a Jewish community before the Black Death and a synagogue in 1938 (panel B of Table 12), we find that 95% of cities with pogroms in 1349 damaged or destroyed their synagogue, as compared to 82% for cities without Black Death Pogroms.

[insert Table 12 here]

Table 13 reports the statistical association between Black Death pogroms and an indicator variable for whether a city's synagogue was damaged or destroyed during the 'Night of Broken Glass.' We show that there is a positive, significant, and robust effect. Columns 1 and 2 report the coefficient for all cities with synagogues, while columns 3-6 restrict the sample to cities that also had Jewish communities in 1349. Our controls include the logarithm of total and Jewish population. The latter is significant and positive in all specifications. Additional controls are the percentage of Jews and Protestants, as well as the unemployment rate and the share of blue collar workers from the 1933 census.[40] The significance of our results is confirmed by both Probit and Matching estimation in columns 5 and 6, respectively, as well as by geography-based matching in columns 7 and 8. The estimated coefficients indicate that cities with Black Death pogroms were about 5-15% more likely to damage or destroy their synagogues during the 'Night of Broken Glass.'

[insert Table 13 here]

Principal Component Analysis

Do the different proxies used so far capture a single underlying pattern of anti-Semitism? We examine this by performing principal component analysis on the five variables used previously.[41]

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[40] We use the 1925 proportion of Protestants because this figure is not available in the 1933 census data.

[41] Those include Pogrom in the 1920s, %DVFP votes in 1924, %NSDAP votes in 1928, *Stürmer* letters, and the indicator variable for damaged or destroyed Synagogue during the Night of Broken Glass. We do not include deportations because those require controlling for initial Jewish population.

The first principal component explains .34 of the variance in our sample, and has positive factor loadings for all variables. This strongly suggests that places that showed signs of Jew hatred in one dimension were also more likely be anti-Semitic in other ways. Crucially, the same pattern of association between anti-Semitism in the 20th century and during the Black Death is visible when we use the first principal component as our dependent variable (Table 14). In order to interpret the results, we normalize all variables, with the exception of the POG_i^{1349} indicator. Thus, the coefficients of POG_i^{1349} tell us by how many standard deviations the principal component increases in cities with medieval pogroms. According to the estimates, this effect is large. Black Death pogroms raise the dependent variable by .27–.57 standard deviations. This is similar in magnitude to the impact of a one standard deviation increase in the share of the Protestant population. A one standard deviation increase in the percentage of blue collar workers, on the other hand, decreases the dependent variable by roughly .2 standard deviations.

[insert Table 14 here]

When transmission failed

Our results suggest a high degree of continuity in terms of anti-Semitic acts and sentiment at the local level. We examine if there are subsets of our sample where persistence is weaker, and focus on four conditioning variables – membership of the Hanseatic League, city growth 1750-1933, Free Imperial cities, and cities ruled by bishops. [42] In each case, local economic and political conditions are expected to differ from the rest of the sample.

In Table 15, we examine if the transmission of anti-Semitic attitudes looks visibly different for these subgroups. We begin with Hanseatic cities. These were mostly (but not exclusively) German self-governed trading cities with a strong history of independence. They were typically ruled by a Patrician elite, grown rich from long-distance trade.[43] For Hanseatic cities (columns 1 and 2), the interaction term with POG^{1349} is negative and significant. The combined effect implies that the degree of transmission from the medieval period is essentially zero. Note that at the same time, membership in the Hanseatic League itself does not systematically alter Jew-hatred in the 1920s and 1930s. What has disappeared is the predictability of 20th century hatred based on medieval pogroms. This is true in both the restricted and the full sample. A similar observation holds for cities with substantial immigration (columns 3 and 4). To show this, we

[42] We take membership information on the Hanseatic League from Daenell (1905). Data on Imperial cities and those ruled by bishops is from Jacob (2010).

[43] At the height of its influence, the Hanseatic League counted more than 80 members. Led by Lübeck, the Hanseatic League included cities from Wisby in Sweden and Riga in Latvia to Roermond in modern-day Holland. Our full and restricted sample include 45 and 34 Hanseatic cities, respectively.

include an indicator for above-and below-median population growth between 1750 and 1933.[44] Cities that grew faster than the median saw substantially and significantly less persistence of anti-Semitic attitudes.

[insert Table 15 here]

We also include interactions with two variables for which we do not expect a clear effect on persistence. First, Free Imperial cities (membership partly overlapped with the Hanseatic League) only owed allegiance to the Emperor, and not to regional princes. They were directly represented in the Imperial diet. Many of them were self-governed by bourgeois elites. Free Imperial cities also show lower levels of persistence (columns 5 and 6), but the difference in effects is not statistically significant. Finally, we look at cities ruled by local bishops. These were governed by the equivalent of a religious prince. They were less important as commercial centers than other Free Imperial cities. We find that levels of anti-Semitism are somewhat higher. The coefficient on the interaction term is positive, but insignificant.

The finding for population growth has a clear interpretation: Where a large inflow of outsiders weakened the transmission of attitudes from one generation to the next, anti-Semitism in the 20th century cannot be predicted by 14th century attitudes. This suggests that the overall pattern of persistence documented in this paper reflects relatively low levels of mobility overall. Long-term transmission is also absent for members of the Hanseatic League – the cities that were most active in long-distance trade. For them, past pogroms do not predict more anti-Semitism in the interwar period. A similar (but weaker) result obtains for Free Imperial cities, which also had a history of self-governance and were often local or national centers of commerce, but where trading traditions were on average not as strong as in the Hanseatic League. Interestingly, for cities run by bishops, the opposite pattern emerges – persistence is even stronger than in the rest of the sample (but not significantly so).

Our results suggest that a history of political independence alone is not sufficient to undermine the long-term transmission of anti-Jewish sentiment. The interpretation we favor is that anti-Semitism is part of a broader pattern of discrimination against outgroup members. The costs of such discrimination must have been higher in cities actively involved in trade, and those where

[44] Ideally, we would like to use city growth starting after the Black Death. However, observations on city size are scarce, reducing our sample to a handful of cities that are already large in the Middle Ages. Instead, we use Bairoch et al. (1988) to obtain figures for 1750 – the earliest date that gives us more than 100 observations. Cities in this subsample are mostly larger than average.

many new citizens arrived in the 19th century. These are the towns where the pattern is no longer passed from generation to generation.

IV. Robustness and Interpretation of Results

In this subsection, we test the robustness of our results. We also run a placebo test for extremist attitudes in general, using election results for the right-wing German National People's Party (DNVP) in 1924. In addition, we show that anti-Semitism persisted even if Jewish communities disappeared as a consequence of Black Death pogroms, and that coefficients from estimating the full sample should be interpreted in a similar vein as those from the restricted sample. Finally, we present additional evidence on post-WWI anti-Semitism in an everyday setting.

Medieval characteristics, unobservables and matching on all attributes

Throughout our empirical analysis, we control for covariates that might have a confounding effect. For example, in the analysis of voting results, we controlled for unemployment and for the share of Protestants, among other variables. So far, all control variables have reflected 20th century city characteristics. We now add two indicators for cities' economic and political role: Whether they had market rights and whether they were incorporated at the time of the Black Death. Table 16 shows the results. Neither of the two indicators, nor their interaction with POG^{1349} is significant. At the same time, our earlier findings are unaffected. The same is true when we construct the two dummy variables for the year 1920.[45]

[insert Table 16 here]

Next, we perform an additional check to deal with unobserved heterogeneity. We use precinct-level fixed effects to capture the influence of unobservable factors at the local level that might have persisted between the 14th and 20th century. There are 417 precincts in our full sample, and 232 in the restricted one. The fixed effect results are therefore very restrictive. About half of our observations are 'lost' because the corresponding precincts contain only one city in the sample. Nonetheless, the magnitude of our results is largely unchanged, and most of them remain statistically significant, as Table 17 shows.[46]

[45] For this specification, both cities with Market rights and incorporated cities appear to have higher levels of anti-Semitism in the full sample, but this effect is insignificant in the restricted sample.
[46] All precincts with only one city have been excluded from the regressions, so that the number of observations in Table 17 reflects the identifying variation when including fixed effects.

[insert Table 17 here]

In our previous propensity score estimations, we either matched by geographic location or by control variables. Table 18 presents an additional robustness check – matching estimation based on all characteristics for which we have data.[47] Both magnitude and statistical significance of the results confirm our previous findings.

[insert Table 18 here]

Right-wing extremism vs. anti-Semitism

It is possible that the association between medieval violence and voting results for the Nazi Party simply reflect more right-wing or violent attitudes. We use a 'political experiment' to separate anti-Semitic from right-wing votes cast in 1924. Following the murder of the Jewish German Foreign Minister Walther Rathenau in 1922, the right-wing DNVP expelled several vociferous anti-Semites from its ranks. As a result, the party split, with the newly-formed DVFP pursuing a similarly nationalist and reactionary program as the DNVP, but with a markedly more radical anti-Semitic twist.[48] On average, the DNVP won about 15% of votes, as compared to 7% for the DVFP.

We have already shown that the DVFP gained more seats in localities with a past of medieval pogroms (Table 8). If this is not simply a reflection of generally more right-wing attitudes, we expect the closest (but less anti-Semitic) competitor DNVP to register fewer votes in towns and cities with an anti-Semitic past. Table 19 demonstrates this: DNVP votes were about 2-4 percent lower in cities with pogroms in 1349. This is similar to the additional votes gained by the DVFP in these cities (Table 8). Since the programs of the two parties were similarly nationalist and right-wing overall, these findings point towards anti-Semitism rather than extreme political attitudes driving the voting behavior in cities with Black Death pogroms.

[insert Table 19 here]

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[47] We use four matches, as we did when matching by non-geographic controls. Because of the extended set of matching variables, the median distance between matched pairs is larger– approximately 50km for the full sample and 65km for the restricted sample.

[48] According to Levy's (2005) entry on the DNVP, "Hitler … thought that the Nationalists were demagogic rather than sincerely anti-Semitic and that they were only willing to fight for their own narrow economic interests. Their shopworn anti-Semitism was trotted out only at election time. Suspicions regarding the seriousness in the matter of the Jewish Question were confirmed when moderates gained control of the party, a process accelerated by the murder of Walther Rathenau…"

Extinction of Jewish communities in 1349, and full vs. restricted sample

Panel A of Table 20 sheds light on the interpretation of full vs. restricted sample results. Whenever we use the full sample, we implicitly compare cities with Black Death pogroms to all other cities. Some but not all of them will have been home to a medieval Jewish community. Panel A of Table 20 directly includes a dummy variable for cities that had Jews in 1349 but saw no Black Death pogroms. The variable is insignificant in all specifications. This suggests that towns without Jewish communities in the Middle Ages showed the same level (or lack) of anti-Semitic attitudes and behavior in the 20th century as those that had Jewish communities, but did not witness Black Death pogroms. While this finding is no statistical proof for the validity of our implicit assumption in using the full sample, it alleviates the concern that we misinterpreted the full sample results.[49]

[insert Table 20 here]

Panel B of Table 20 examines if the link between Black Death pogroms and anti-Semitism in interwar Germany is present even in towns and cities whose Jewish communities vanished completely in 1348-50.[50] We demonstrate this by splitting the indicator variable for POG^{1349} into two parts: First, Jewish communities that vanished in 1349 as a result of attacks, and second, Jewish communities that suffered pogroms but survived. Both generally have a positive and significant effect for most dependent variables, and they are mostly indistinguishable in a statistical sense from each other. The only exception is for deportations. This suggests that 20th century anti-Semitism was broadly similar (or somewhat stronger) in cities where Jewish communities were extinguished in 1349, compared to those places where they were attacked but survived as a community.

Low-level anti-Semitism in the Weimar Republic

How much can our indicators for anti-Semitism in the Weimar period be trusted to reflect anti-Jewish sentiment, as opposed to generally violent or xenophobic attitudes? To shed light on this question, we collect information on everyday anti-Semitism. During the Weimar period, some towns declared themselves off limits to Jewish visitors in their entirety. In most cases, individual hotels and inns warned that Jewish guests were not welcome. A Jewish newspaper, the *Central-*

[49] An additional supporting fact is that throughout the paper, coefficients on POG^{1349} are very similar for the full and the restricted sample.

[50] To code communities as vanished, they need to be explicitly mentioned as such in the Germania Judaica. For many cities, several centuries passed before Jewish communities returned. In others, Jews settled again after only a few decades.

Vereins-Zeitung, published a comprehensive list of such establishments every year in May.[51] We use the 1931 edition, and first examine if we can find the same pattern of persistence as for other indicators of anti-Semitism.

[insert Table 21 here]

Table 21 gives an overview. In total, 90 locations contained at least one openly anti-Semitic inn, restaurant, or hotel. In the subsample of cities and towns with Jewish settlements in the 14th century, the contrast is stark – those places that burned their Jews are twice as likely to have anti-Semitic hotels and inns (the probabilities are 3.7% vs. 8.3%). For the entire sample, the probability of a location without a 1349 pogrom reporting at least one hotel, inn, or restaurant off limits to Jewish guests is 6.8%; in those that had pogroms, the proportion is again higher, 8.3%.

[insert Table 22 here]

In Table 22, we investigate the covariance of the 'no Jews' indicator with other measures of anti-Semitism. We control for population size in all regressions because larger cities are more likely to have at least one hotel on the 'no Jews' list. While we do not find statistically significant results in each and every case, results overwhelmingly suggest that everyday discrimination is correlated with the more extreme forms of anti-Semitism. In particular, we find a positive correlation of the 'no Jews' indicator with the principal component. This suggests that our indicators are valid measures of a pattern of anti-Semitism, broadly conceived.

V. Conclusion

At the time of the Black Death, Jews were burned in towns and cities all over Germany – but not in all. In this paper, we demonstrate that the same places that saw violent attacks on Jews during the plague also showed more anti-Semitic attitudes over half a millennium later: They engaged in more anti-Semitic violence in the 1920s, were more likely to vote for the Nazi Party before 1930, had more citizens writing letters to an anti-Semitic newspaper, organized more deportations of Jews, and saw more attacks on synagogues during the 'Night of Broken Glass' in 1938. Strikingly, violent hatred of Jews persisted despite the fact that Jews disappeared in many towns and cities for centuries. Also, in contrast to many other findings in the literature on long-run effects of culture, the 'trait' we investigate yields no immediate economic benefit – on the contrary, the economic effect was likely negative because of the Jews' important role as traders

[51] We use the supplement to the issue from May 8, 1931, p. I-IV.

and financial intermediaries. Nonetheless, anti-Semitic acts were often repeated in the same places more than half a millennium later.

Our findings lend qualified support to theories that explain anti-Semitism based on deep cultural roots.[52] The influence of medieval pogroms for 20th century anti-Semitism underlines the importance of deeper historical antecedents of post-WWI German anti-Semitism at the local level. The estimated effects are large. Our broad measure of 20th century anti-Semitism (the first principal component) is about 0.3–0.6 standard deviations higher in cities that saw medieval pogroms. At the same time, medieval pogroms are not sufficient to explain all of the variation in the cross-section.

Finding persistence over six centuries is in need of explanation. Low mobility is one likely factor – persistence disappears in faster-growing cities. In addition, we find partial support for Montesquieu's famous argument that trade encourages "civility" – Hanseatic cities with a tradition of long-distance trade do not show persistence of anti-Semitism. In contrast, a history of political independence in general only weakens persistence.

Many studies have asked if the rise of the Nazi Party should be interpreted as a direct consequence of growing, broad-based anti-Semitism in the Weimar Republic. Our findings do not support such an interpretation. While we still find a clear effect of medieval pogroms on the Nazi vote in 1928, and a weaker one in 1930, this link vanishes as the party's mass appeal grows. The party's political profile changed after 1928. In particular, it became less virulently anti-Semitic in its propaganda. This is not to say that anti-Semitic sentiments didn't contribute to the electoral successes of the NSDAP, but the link with its deeper, historical roots became more tenuous in the years leading up to the 'seizure of power' in 1933.[53]

One question for future research is how common the long-term persistence of inter-ethnic hatred is. There is anecdotal evidence that it is not rare. For example, England, France, and Spain expelled their Jews during the Middle Ages. Nonetheless, anti-Semitism lingered. Until recently, Spanish children played a game called 'Killing Jews' around Easter – in a country where Jews have been almost entirely absent since 1492 (Perednik 2003).[54] England between 1290 and 1656

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[52] Goldhagen (1996) argued that the Holocaust reflected widespread, 'exterminationist' anti-Semitic beliefs. We find that local precedent mattered, but this does not lend direct support to Goldhagen's wider argument.

[53] In this sense, our findings support the more revisionist claims by Heilbronner (2004). Our results also do not suggest that deep-rooted anti-Semitism at the local level allowed the Nazi Party to garner enough votes for its bid for power.

[54] In a 2009 study by the Anti-Defamation League, five hundred people from Austria, France, Hungary, Germany, Poland, Spain, and the United Kingdom were interviewed about the attitudes towards Jews. Together with Poland, Spain was the most anti-Semitic (Anti-Defamation League, 2009).

was similar. “For almost four centuries the English people rarely, if ever, came into contact with flesh-and-blood Jews. Yet they considered the Jews to be an accursed group of usurers, who, in league with the Devil, were guilty of every conceivable crime…” (Glassman 1975).

Our results also have implications for the theory of cultural transmission. Models in the style of Tabellini (2008) emphasize that parents direct educational investment towards traits that are useful for the next generation. In contrast, work by Bisin and Verdier (2001) focuses on ‘imperfect empathy.’ Parents care only partly about the well-being of their offspring, and invest heavily in making children more similar to themselves. We find persistence of a cultural trait without immediate benefit over a long period, which seems to favor the Bisin-Verdier model. At the same time, in towns where discrimination against outsiders was more costly (such as in member cities of the Hanseatic League), there is no evidence that 14th century attacks still predict 20th century anti-Semitism. This lends support to models in which parental investment is partly shaped by parents’ utilitarian motives (Tabellini 2008, Doepke and Zilibotti 2008).

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Appendix: Data

Medieval data

As described in section II, we use Germania Judaica [GJ] from Avneri (1968) as our principal source. We first establish the presence of a Jewish community based on it being included in GJ, volume II, which is for the period 1238-1350. Where later work by Alicke (2008) mentions that a Jewish community existed during this period, we modify the variable for confirmed settlement accordingly. For each town, city or village where GJ mentions pogroms, violent attacks on the Jewish population, the burning of Jews, or the wholesale extermination of the Jewish community in 1348-50, we code our dummy variable for Black Death pogroms, POG^{1349}, as unity, and zero otherwise.

Data on 20th century violence and anti-Semitic attitudes

We collected data on pogroms in the 1920s, on the number of *Stürmer* letters, on deportations, and on attacks on synagogues. Our source for all of these with the exception of the *Stürmer* letters is Alicke (2008). For pogroms in the 1920s we use a dummy that equals one for cities with documented pogroms during this period. Since Alicke focuses on 'positive' information, i.e., only those events that actually occurred are mentioned, this variable is always assumed to take the value zero unless stated otherwise in Alicke's encyclopedia. In order for riots and the like to qualify as a pogrom-like event, the coding followed closely the definition of a pogrom as a violent outrage against the Jewish population, involving physical violence against and/or the killings of people. Therefore, political agitation through *Brandreden* (incendiary speeches), attacks on Jewish shows, or the desecration of cemeteries was not coded as a pogrom. Only when physical violence against at least one Jewish inhabitant is mentioned in Alicke does this variable take the value of unity.

From Alicke (2008), we also take data on the existence of a synagogue in 1933 (coded as 1 if mentioned as such, and 0 otherwise), as well as on the extent of attacks in 1938 during the 'Night of Broken Glass' (*Reichskristallnacht*). We constructed two dummy variables – one for destroyed synagogues, and one for damaged ones. For the former, we assign a value of zero if no synagogue/s still in use in 1933 were destroyed during *Reichskristallnacht*. "Destruction" occurred if the relevant building was damaged at least to an extent that it became unusable, in which cases Alicke mostly uses the term "zerstört" (destroyed). The variable then takes the value

1. We code our variable for synagogue damage in a locality zero if no synagogue/s still in use in 1933 was damaged during *Reichskristallnacht*. "Damage" we define as any inventory of a synagogue was destroyed or the physical fabric of the building itself was damaged but remained intact. The variable takes the value 1 in these cases. From these two variables, we create a combined variable for synagogues destroyed or damaged.

As an additional variable, the number of published letters to the editor from the anti-Semitic newspaper *Der Stürmer* is included in our dataset. For the years 1935 to 1938, all letters to the editor published in one of three different categories were counted provided their place of origin matched a locality in our dataset. The three categories are: (1.) Letters that were published as articles, e.g., a schoolgirl writing about her classmates still interacting with Jewish pupils. (2.) Letters in which individual Jews or people still talking to/doing business with Jews are denounced. (3.) The category "mailbox" in which *Der Stürmer* answers questions about Jews ("how many Jews live in xyz town?"). We count letters in these three categories for all three years in our analysis, and sum them by locality.

Election data

We use election data initially collected by Jürgen Falter (1991) and his team. The source for their database are the official statistics of the Weimar Republic (*Statistik des Deutschen Reiches*). The vote for each party is calculated as the ratio of the number of valid votes received, divided by the total number of valid votes cast. For May 4, 1924, we analyze the results for the *Deutsch-Völkische Freiheitspartei* (DVFP) as well as for the *Deutschnationale Volkspartei* (DNVP). For the elections of May 20, 1928, September 14, 1930, and March 5, 1933, we focus on the *Nationsozialistische Deutsche Arbeiterpartei* (NSDAP).

For the socio-economic correlates in our section on elections, we use data from Falter (1991), derived from the censuses of 1925 and 1933. These allow us to control for the number of inhabitants, the percentage of the population that is Protestant, the share of Jews, and the percentage of blue-collar workers.

Deportations

The German Federal Archives have compiled a comprehensive list of Jewish deportees during the Nazi period (Bundesarchiv 2007). We use the second, expanded and improved edition. It contains information on 159,972 individuals (Jewish or presumed Jewish by the authorities) who lived in what was considered Germany proper between 1933 and 1945. The database is available online (http://www.bundesarchiv.de/gedenkbuch/directory.html). We consulted the database by

entering every single locality in our dataset into the search engine (“Wohnort”), and then recorded the number of listed deportees for the years 1933-45. A typical entry reads:

Lehmann, Helen	**Lehmann, Helen**
geb. Mayer * 24. Juli 1876 in Maikammer wohnhaft in Meckenheim Deportation: ab Camp de Vernet 19. August 1942, Auschwitz, Vernichtungslager	née Mayer, born 24.7.1876 living in Meckenheim (Rhineland) deported from Camp de Vernet on 19th of August to Auschwitz (extermination camp)

FIGURES

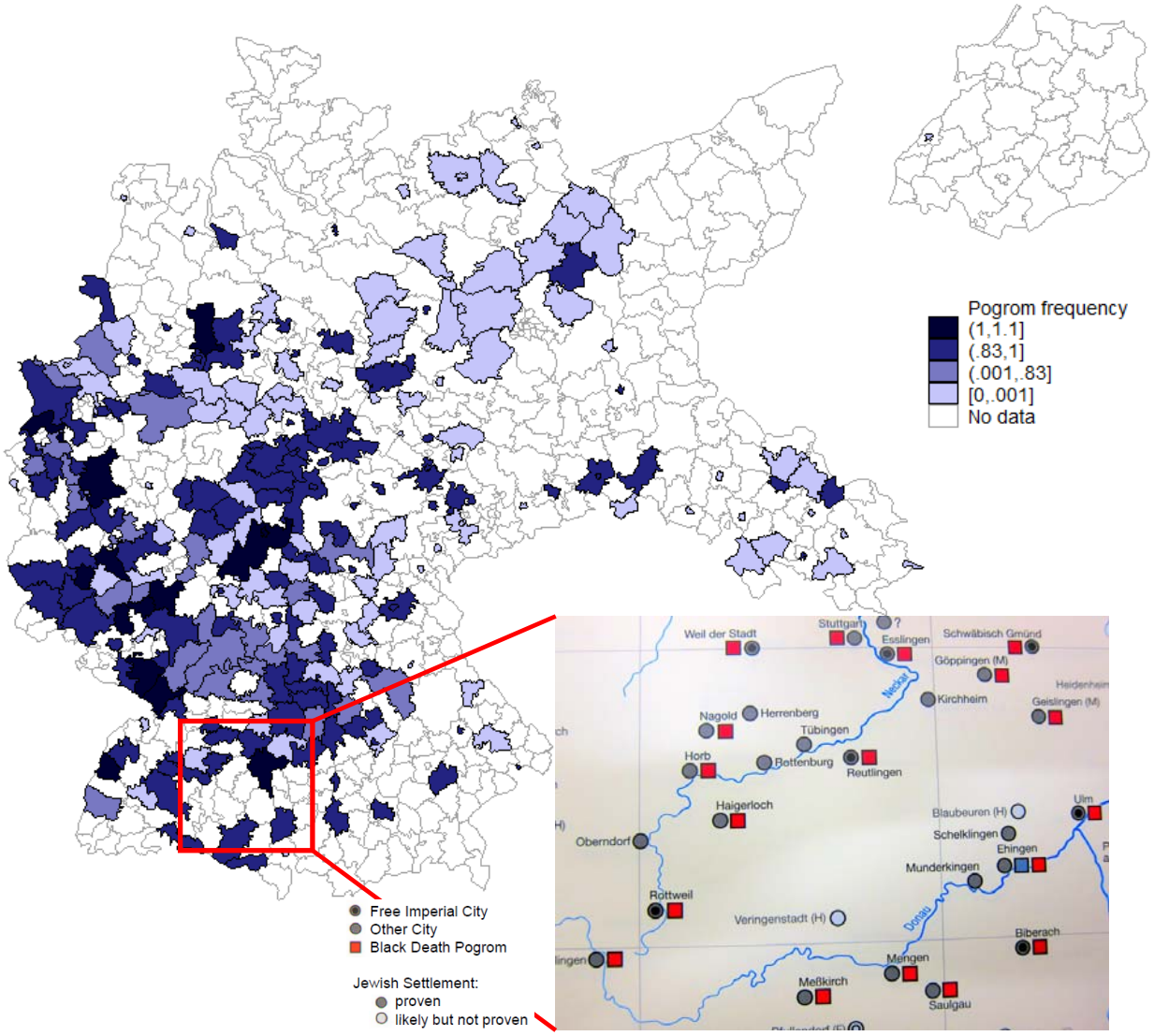

Figure 1: Pogroms in 1348-50

Map of Weimar Republic: Pogrom frequency is defined at the precinct level as the number of cities with pogroms in 1349 divided by the number of cities with a Jewish community. The lowest category (0-.001] indicates Jewish settlement with no pogroms. We define pogrom frequency=1.1 if a precinct has more than one city with a Jewish community and pogroms in each of these cities.
Detailed map: Copied from Haverkamp (2002). Locations with a confirmed Jewish settlement in the 14th century are indicated by a dark grey circle; a red square indicates a pogrom during the time of the Black Death.

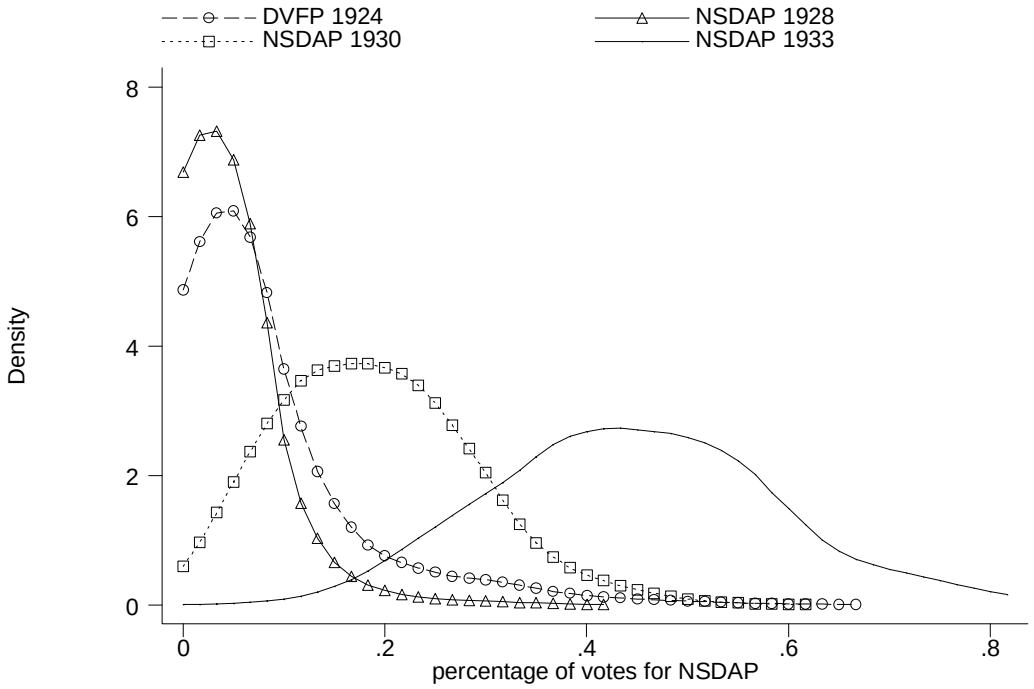

Figure 2: Electoral results for the DVFP and NSDAP, 1924-1933 (kernel density estimates, by district)

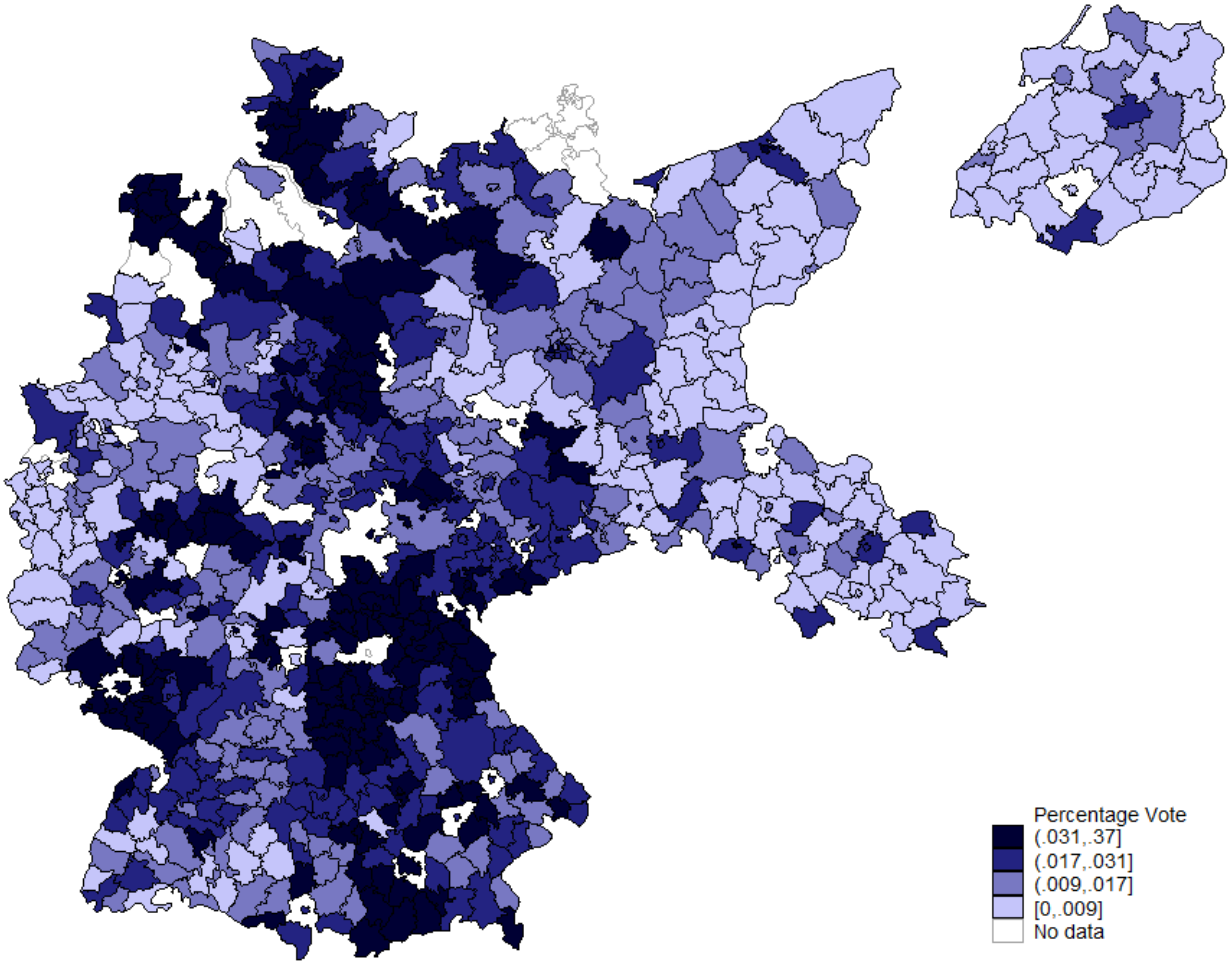

Figure 3: Percentage of votes for the NSDAP in the German national election of 1928

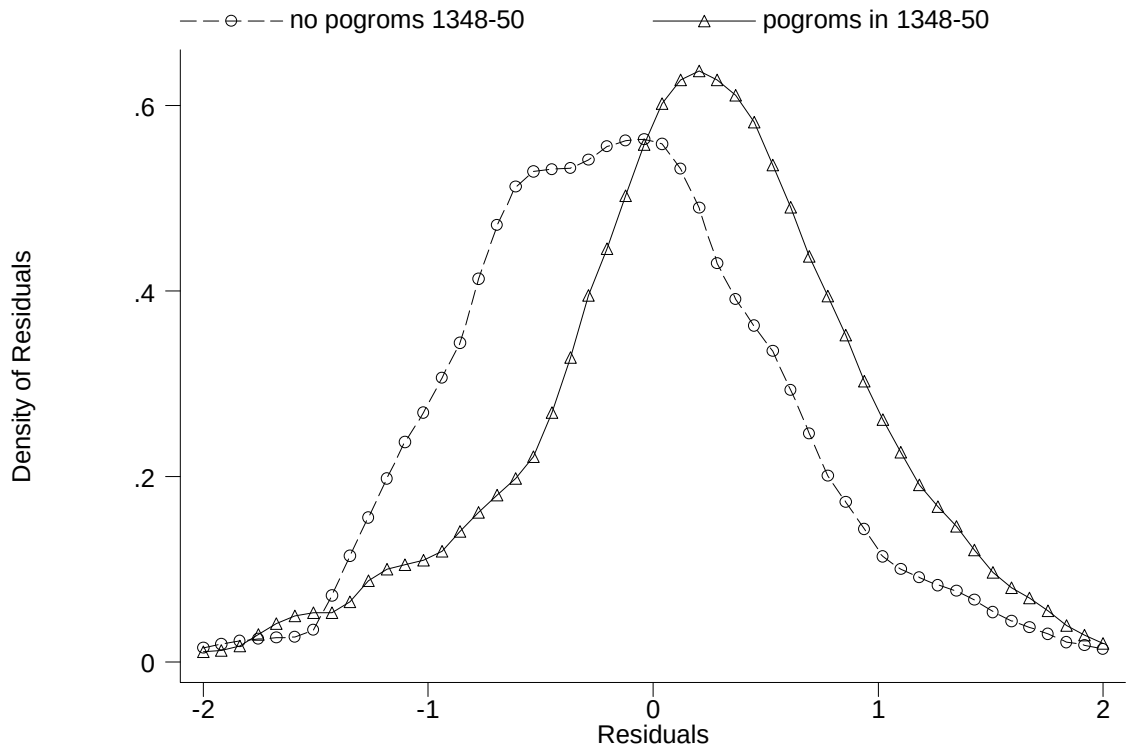

Figure 4: Deportations of Jews, conditional on Black Death Pogroms

Note: Residual of a regression of ln(deportations) on ln(Jewish population in 1939).

TABLES

Table 1: Descriptive statistics

	mean	Std.dev	min	max	Obs.
Population in 1933[$]	22,331	138,272	138	4,449,125	1,393
% Jewish in 1933	.023	.032	.000047	.377	1,145
% Protestant in 1925	.549	.329	.00897	.987	1,400
Synagogue in 1933	.794	.405	0	1	1,359
Indicators for 20thC anti-Semitism					
POG^{1920s}	.027	.162	0	1	1,377
$NSDAP^{1928}$	.032	.043	0	.359	1,292
$DVFP^{1924}$	.069	.087	0	.593	1,254
DEPORT	113.4	1597.3.7	0	55,807	1,331
STÜRMER	1.75	11.08	0	354	1,401
SYNATTACK	.828	.378	0	1	1,079
Medieval Jewish settlement	.262	.440	0	1	1,401
Black Death pogrom (POG^{1349})	.172	.377	0	1	1,269

Table based on full sample (including all cities with Jewish population in 1920/30). POG^{1920s} is an indicator variable for pogroms in each location during the 1920s; $NSDAP^{1928}$ is the vote share of the NSDAP in the May 1928 election, $DVFP^{1924}$ is the vote share for the Deutsch-Völkische Freiheitspartei in May 1924; *DEPORT* is the number of deportees from each locality; *STÜRMER* is the number of anti-Semitic letters to *Der Stürmer*; *SYNATTACK* takes the value 1 if a synagogue was destroyed or damaged in the 'Night of Broken Glass' in 1938, and 0 otherwise. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.
[$] The largest city in the sample is Berlin, which is composed of several boroughs. It is followed by Hamburg, Cologne, and Munich.

Table 2: Correlations between main variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) POG^{1349}	1						
(2) POG^{1920s}	.1627*	1					
(3) $DVFP^{1924}$	.1177*	.1289*	1				
(4) $NSDAP^{1928}$	.1094*	.0832*	.6239*	1			
(5) *DEPORT* (resid.)[$]	.1633*	.1009	-.0197	.0052	1		
(6) ln(1 + *STÜRMER*)	.3248*	.2043*	.0868*	.0207	.2139*	1	
(7) *SYNATTACK*	.1558*	.0373	-.0196	-.0294	.0194	.1733*	1

Table based on full sample (including all cities with Jewish population in 1920/30). [*]significant at the 1% level. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. POG^{1920s} is an indicator variable for pogroms in each location during the 1920s; $NSDAP^{1928}$ is the vote share of the NSDAP in the May 1928 election, $DVFP^{1924}$ is the vote share for the Deutsch-Völkische Freiheitspartei in May 1924; *DEPORT* is the number of deportees from each locality; *STÜRMER* is the number of anti-Semitic letters to *Der Stürmer*; *SYNATTACK* takes the value 1 if a synagogue was destroyed or damaged in the 'Night of Broken Glass' in 1938, and 0 otherwise.
[$] Residual of a linear regression of ln(deportations) on ln(Jewish population in 1939)

Table 3: City-level outcome variables and medieval pogroms

Dep. Variable:	(1) City population growth 1300-1933	(2) City population growth 1750-1933	(3) %Jews '33	(4) City population growth 1300-1933	(5) City population growth 1750-1933	(6) %Jews '33
Sample	--- full ---			--- restricted ---		
POG^{1349}	-.802	-.252	.00139	.159	.0539	.00146
	(.506)	(.167)	(.00165)	(.584)	(.259)	(.00184)
Observations	53	144	1,032	45	109	299
Adjusted R^2	.227	.003	.215	.040	-.016	.086

All regressions run by OLS. Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. City population data for 1300 and 1750 from Bairoch et al. (1988). Additional control variables are: ln(City population) in 1300 in columns 1 and 4, ln(City population) in 1750 in columns 2 and 5, and ln(City population) in 1933 in columns 3 and 5.

Table 4: Black Death Pogroms and Pogroms in the 1920s

Panel A: All Cities

Pogroms in 1920s	Pogrom in 1349: No	Yes	Total
No	1,015 (98.5%)	197 (91.6%)	1,212 (97.4%)
Yes	15 (1.5%)	18 (8.4%)	33 (2.6%)
Total	1,030	215	1,245

Panel B: Cities with Jews in 1348-50

Pogroms in 1920s	Pogrom in 1349: No	Yes	Total
No	78 (98.7%)	197 (91.6%)	275 (93.5%)
Yes	1 (1.3%)	18 (8.4%)	19 (6.5%)
Total	79	215	294

Table 5: Dependent variable: Pogrom 1920s

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) Probit	(6) ME[#]	(7) GeoMatch[§]	(8)
Sample	full		--- restricted ---				full	restr.
POG^{1349}	.0692***	.0661***	.0711***	.0633***	.849**	.0622***	.0873***	.0867***
	(.0193)	(.0189)	(.0228)	(.0241)	(.423)	(.0193)	(.0239)	(.0210)
ln(Pop '25)		.0176***		.0354**	.251***	(mv)	Median Distance	
		(.00552)		(.0156)	(.0969)		10.5	20.7
% Jewish '25		-.0116		-.0863	-.0886	(mv)	Mean Distance	
		(.519)		(1.798)	(13.89)		20.5	25.1
% Protestant '25		.0271**		.0266	.328	(mv)		
		(.0131)		(.0461)	(.391)			
Observations	1,245	1,243	294	294	294	294	1,243	294
Adjusted R2	.026	.046	.013	.044				

Standard errors in parentheses * p < .10, ** p < .05, *** p < .01. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

§ Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 6: Black Death Pogroms and Elections in Weimar Germany

Panel A: All Cities				Panel B: Cities with Jews 1349		
	Pogrom in 1349			Pogrom in 1349		
	No	Yes	Total	No	Yes	Total
DVFP 1924	.064	.090	.069	.074	.090	.086
NSDAP 1928	.030	.043	.033	.028	.043	.039
NSDAP 1930	.186	.189	.187	.179	.189	.186
NSDAP 1933	.463	.415	.455	.439	.415	.422

Table 7: Dependent variable: % vote for NSDAP in May 1928 election

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS – all cities		OLS	OLS	ML[$]	ME[#]	GeoMatch[§]	
Sample	full		--- restricted ---				full	restr.
POG^{1349}	.0126***	.0143***	.0146**	.0167***	.463***	.0152***	.00864***	.0151***
	(.00430)	(.00425)	(.00573)	(.00609)	(.173)	(.00540)	(.00299)	(.00416)
ln(Pop '25)		-.000488		-.00175	-.0437	(mv)	Median Distance	
		(.00120)		(.00234)	(.0603)		10.5	20.7
% Jewish '25		-.554**		-.799*	-21.01	(mv)	Mean Distance	
		(.234)		(.455)	(14.35)		21.0	24.5
% Protestant '25		.0330***		.0329***	.871***	(mv)		
		(.00624)		(.0117)	(.296)			
% Blue collar '33		-.122***		-.135***	-3.574***	(mv)		
		(.0319)		(.0466)	(1.199)			
Observations	1,168	1,167	283	283	283	283	1,166	283
Adjusted R2	.011	.081	.012	.055				

Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

[$] Poisson maximum likelihood estimation.

[#] Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 8: Dependent variable: % vote for DVFP/NSFP in May 1924 election

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) ML[$]	(6) ME[#]	(7) GeoMatch[§]	(8)
Sample	full		--- restricted ---				full	restr.
POG^{1349}	.0264***	.0312***	.0164	.0219*	.266*	.0212*	.0259***	.0260***
	(.00834)	(.00813)	(.0119)	(.0123)	(.150)	(.0120)	(.00559)	(.00805)
ln(Pop '24)		-.00374*		-.000415	-.00625	(mv)	Median Distance	
		(.00224)		(.00443)	(.0529)		10.4	20.2
% Jewish '25		-1.275***		-2.229***	-28.28**	(mv)	Mean Distance	
		(.471)		(.760)	(11.28)		20.8	24.4
% Protestant '25		.0795***		.0832***	.983***	(mv)		
		(.0125)		(.0249)	(.295)			
% Blue collar '33		-.163**		-.205*	-2.538**	(mv)		
		(.0698)		(.107)	(1.199)			
Observations	1,137	1,136	279	279	279	279	1,135	279
Adjusted R2	.013	.103	.002	.065				

Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. *POG*^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

[$] Poisson maximum likelihood estimation.

[#] Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 9: Dependent variable: % vote for NSDAP after 1928

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year:		---1930 ---				---1933 ---		
	OLS	OLS	ME[#]	GeoM.[§]	OLS	OLS	ME[#]	GeoM.[§]
Sample	full	--- restricted ---			full	--- restricted ---		
POG^{1349}	.0126**	.0149	.0166	.0280**	-.0140*	-.00925	-.000265	-.00764
	(.00618)	(.0118)	(.0123)	(.0112)	(.00805)	(.0145)	(.0135)	(.0181)
ln(Pop)	-.00636**	-.0106**	(mv)		.00850**	-.00348	(mv)	
	(.00294)	(.00413)			(.00394)	(.00526)		
% Jewish'33	-.143*	-.558*	(mv)		.328**	1.075***	(mv)	
	(.0845)	(.318)			(.153)	(.388)		
Additional Controls	yes	yes	(mv)		yes	Yes	(mv)	
Observations	979	286	286	286	1,005	295	295	295
Adjusted R^2	.257	.159			.472	.356		

Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Additional controls include: %Protestant '25, %Blue-Collar '33, %Unemployed '33. Population is taken from the election data for the respective year.

[#] Matching estimation based on the full set of control variables in columns (2) and (4), respectively. Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches for columns (4) and (8) are respectively: median distance 21.3, 21.0; mean distance 24.8, 24.9.

Table 10: Deportations 1933-1944

Dep. Variable:	ln(1 + # of deported Jews)				# of deported Jews		ln(1+#dep. Jews)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	ME[#]	ME[#]	ML[$]	ML[$]	GeoMatch[§]	
Sample	full	--- restricted ---			--- restricted ---		full	restr.
PANEL A: Controlling for Jewish population in 1933								
POG^{1349}	.138[*]	.140	.369[**]	.540[***]	.239[***]	.165[**]	.212[*]	.569[***]
	(.0818)	(.142)	(.163)	(.144)	(.0675)	(.0776)	(.113)	(.198)
ln(# Jews '33)	.928[***]	1.046[***]	(mv)	(mv)	1.026[***]	.880[***]	Median Distance	
	(.0238)	(.0346)			(.0210)	(.0937)	30.2	37.5
Additional Controls	no	no		(mv)	no	yes	Mean Distance	
							42.5	44.9
Observations	958	255	255	255	255	255	958	255
Adjusted R^2	.658	.775						
PANEL B: Controlling for Jewish population in 1939								
POG^{1349}	.373[***]	.342[**]	.543[**]	.630[***]	.124	.104	.679[***]	.815[***]
	(.0963)	(.170)	(.252)	(.164)	(.111)	(.101)	(.189)	(.276)
ln(# Jews '39)	.733[***]	.802[***]	(mv)	(mv)	.936[***]	.593[***]	Median Distance	
	(.0255)	(.0436)			(.0230)	(.126)	37.1	47.6
Additional Controls	no	no		(mv)	no	yes	Mean Distance	
							49.1	53.4
Observations	624	186	186	186	186	186	624	186
Adjusted R^2	.753	.809						

Standard errors in parentheses. [*] $p < .10$, [**] $p < .05$, [***] $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Additional controls include: ln(pop '33), %Protestant, %Jewish, %Blue Collar.

[$] Poisson maximum likelihood estimation.

[#] Matching estimation based on the full set of control variables in columns (1) and (2), respectively. Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude, latitude, and ln(# Jews '33) in panel A / ln(# Jews '39) in panel B for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 11: Letters to the editor, *Der Stürmer*

Dep. variable:	ln(1 + number of letters)				number of letters		ln(1+#letters)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	ME[#]	ME[#]	ML[$]	ML[$]	GeoMatch[§]	
Sample	full	--- restricted ---			--- restricted ---		full	restr.
POG[1349]	.107[*]	.0452	.219[***]	.272[***]	.380[**]	.316[*]	.162[**]	.268[***]
	(.0587)	(.0843)	(.0845)	(.0986)	(.166)	(.163)	(.0795)	(.100)
ln(# Jews '33)	.260[***]	.333[***]	(mv)	(mv)	.557[***]	.759[***]	Median Distance	
	(.0240)	(.0507)			(.0886)	(.166)	30.1	36.0
ln(Pop '33)	.147[***]	.194[***]	(mv)	(mv)	.238[**]	.0534	Mean Distance	
	(.0159)	(.0478)			(.0996)	(.169)	40.9	41.2
Additional Controls	no	no	(no)	(mv)	no	yes		
Observations	1,013	277	277	277	277	277	1,267	299
Adjusted R^2	.511	.577						

Standard errors in parentheses. * p < .10, ** p < .05, *** p < .01. *POG*[1349] takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Additional controls include: %Protestant, %Jewish, %Blue Collar.

$ Poisson maximum likelihood estimation.

[#] Matching estimation based on the full set of control variables in columns (1) and (2), respectively. Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude, latitude, and ln(Pop '33) for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 12: Black Death Pogroms and Assaults on Synagogues

Panel A: All Cities with Synagogue

Syn. destroyed or damaged?	Pogrom in 1349		
	No	Yes	Total
No	158 (20.2%)	10 (5.3%)	168 (17.3%)
Yes	625 (79.8%)	179 (94.7%)	804 (82.7%)
Total	783	189	972

Panel B: Cities with Jews 1349

Syn. destroyed or damaged?	Pogrom in 1349		
	No	Yes	Total
No	10 (17.9%)	10 (5.3%)	20 (8.2%)
Yes	46 (82.1%)	179 (94.7%)	225 (91.8%)
Total	56	189	245

Table 13: Dependent variable: Synagogue damaged or destroyed in 1938

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) Probit	(6) ME[#]	(7) GeoMatch[§]	(8)
Sample (cities w/ synagogue)	full		--- restricted ---				full	restr.
POG^{1349}	.149***	.0506**	.126**	.111**	.605**	.129**	.143***	.147*
	(.0217)	(.0247)	(.0539)	(.0527)	(.289)	(.0603)	(.0261)	(.0802)
ln(Pop '33)		.00466		.0168	.156	(mv)	Median Distance	
		(.0193)		(.0173)	(.164)		10.9	24.6
ln(# Jews '33)		.0661***		.0316*	.500***	(mv)	Mean Distance	
		(.0209)		(.0185)	(.168)		21.7	30.8
Additional Controls	no	yes	no	yes	yes	(mv)		
Observations	972	819	245	231	231	231	971	245
Adjusted R^2	.023	.080	.033	.084				

Standard errors in parentheses. * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Additional controls include: % Protestant '25, % Jewish '33, % unemployed '33, and % Blue Collar '33.

[#] Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 14: Dependent variable: First principal component of 5 outcome variables[$]

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) ML[#]	(6) ME[##]	(7) GeoMatch[§]	(8)
Sample	--- full ---		--- restricted ---				full	restr.
POG^{1349}	.560***	.387***	.313***	.275**	.0278**	.299**	.571***	.410***
	(.105)	(.102)	(.111)	(.117)	(.0117)	(.130)	(.0658)	(.0732)
ln(Pop '33)		.197***		.133**	.0133**	(mv)		
		(.0422)		(.0612)	(.00602)			
% Jewish		.0897**		-.0293	-.00305	(mv)	Median Distance	
'33		(.0371)		(.0402)	(.00409)		10.4	20.7
% Protestant		.308***		.224***	.0224***	(mv)	Mean Distance	
'25		(.0524)		(.0748)	(.00743)		20.7	25.0
% Blue collar		-.214***		-.175***	-.0177***	(mv)		
'33		(.0559)		(.0646)	(.00645)			
Observations	1,107	906	275	275	275	275	1,105	275
Adjusted R2	.046	.133	.016	.067				

[$] First principal component obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+Stürmer letters), and indicator variables for Synagogue damaged or destroyed. The dependent variable and all control variables are standardized, so that beta coefficients are reported. Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. *POG*^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

[#] Poisson maximum likelihood estimation.

[##] Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches is reported.

Table 15: Differences in Persistence. Dependent variable: Principal component[$]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Hanseatic		Pop. growth		Free Imperial		Bishop	
Sample	full	restr.	full	restr.	full	restr.	full	restr.
POG^{1349}	.419***	.298**	.695**	.888***	.386***	.295**	.376***	.270**
	(.109)	(.126)	(.348)	(.266)	(.111)	(.122)	(.106)	(.119)
Hanseatic	.00736	-.103						
	(.178)	(.193)						
Hanseatic × POG^{1349}	-.471**	-.394*						
	(.234)	(.231)						
Pop. Growth 1750-1933			-.333	.368				
			(.307)	(.452)				
Pop. Growth × POG^{1349}			-.716*	-1.255**				
			(.399)	(.485)				
Free Imperial					.317	.279		
					(.385)	(.451)		
Free Imperial × POG^{1349}					-.231	-.270		
					(.444)	(.483)		
Bishop							.254	.0287
							(.341)	(.321)
Bishop × POG^{1349}							.0163	.0880
							(.446)	(.394)
Observations	906	275	133	103	906	275	906	275
Adjusted R^2	.134	.074	.067	.093	.132	.062	.132	.061

All regressions run by OLS, including the controls: ln(city population '33), % Protestant '25, % Jewish '33, % unemployed '33, and % Blue Collar '33 (all standardized). Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

[$] First principal component obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+Stürmer letters), and indicator variables for Synagogue damaged or destroyed. The dependent variable is standardized.

Table 16: Controlling for economic characteristics. Dep. variable: Principal component[$]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Market 1349		Market 1920		Incorporated 1349		Incorporated 1920	
Sample	full	restr.	full	restr.	full	restr.	full	restr.
POG^{1349}	.375***	.252*	.311**	.255*	.459**	.385*	.521**	.462**
	(.117)	(.132)	(.123)	(.130)	(.195)	(.208)	(.206)	(.187)
Market rights	.102	-.0780	.221***	.206				
	(.144)	(.167)	(.0837)	(.141)				
Market rights × POG^{1349}	-.0221	.102	.0304	-.00494				
	(.232)	(.213)	(.191)	(.198)				
Incorporated					.0343	.0778	.181**	.209
					(.0785)	(.155)	(.0858)	(.158)
Incorporated × POG^{1349}					-.123	-.168	-.215	-.254
					(.231)	(.238)	(.237)	(.232)
Observations	906	275	906	275	906	275	906	275
Adjusted R^2	.131	.061	.139	.070	.131	.062	.135	.063

All regressions run by OLS, including the controls: ln(city population '33), % Protestant '25, % Jewish '33, % unemployed '33, and % Blue Collar '33 (all standardized). Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise.

[$] First principal component obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+Stürmer letters), and indicator variables for Synagogue damaged or destroyed. The dependent variable is standardized.

Table 17: Fixed effects at the precinct level

Dep. Variable:	(1) 1920s pogroms	(2) NSDAP 1928	(3) DVFP 1924	(4) Depor-tations	(5) Stürmer letters	(6) Synagogue attacks	(7) Principal Component[$]
PANEL A: All cities in precincts with more than one city							
POG^{1349}	.0658***	.0140***	.0285***	.278	.162**	.0627	.353***
	(.0207)	(.00491)	(.00534)	(.181)	(.0764)	(.0401)	(.0896)
ln(Pop)	.00703	.0000189	-.00740***	.252***	.298***	.0652***	.242***
	(.00568)	(.00193)	(.00199)	(.0555)	(.0301)	(.0143)	(.0399)
ln(# Jews '39)				.567***			
				(.0551)			
Observations	1,046	968	938	480	1,064	818	916
Adjusted R^2	.043	.483	.736	.711	.373	.103	.653
PANEL B: All cities in precincts with more than one city with Jews in 1349							
POG^{1349}	.0511	.0156**	.0185**	.787	.220	.319**	.236**
	(.0453)	(.00758)	(.00743)	(.751)	(.255)	(.126)	(.0905)
ln(Pop)	.00125	-.000687	-.000790	.586*	.465***	.0344	.122**
	(.0176)	(.00460)	(.00297)	(.320)	(.0878)	(.0271)	(.0604)
ln(# Jews '39)				.520**			
				(.237)			
Observations	138	131	130	71	140	123	129
Adjusted R^2	-.156	.264	.882	.807	.405	.395	.634

All regressions run by OLS at the city level. Standard errors in parentheses. * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. City population is taken from the election data for the respective year in columns 1-3 (in column 1, values from the May 1924 election are used). In columns 4-7, city population is from the 1933 census.

[$] First principal component (standardized) obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+*Stürmer* letters), and indicator variables for Synagogue damaged or destroyed.

Table 18: Matching by all characteristics, including geographic location

Dep. Variable:	(1) 1920s pogroms	(2) NSDAP 1928	(3) DVFP 1924	(4) Depor-tations	(5) Stürmer letters	(6) Synagogue attacks	(7) Principal Component[$]
			PANEL A: Full Sample				
POG^{1349}	.0498**	.00997**	.0154**	.549***	.159**	.0642**	.244***
	(.0221)	(.00410)	(.00669)	(.128)	(.0676)	(.0298)	(.0923)
Observations	1,241	1,165	1,134	576	1,031	833	906
			PANEL B: Restricted Sample				
POG^{1349}	.0731***	.0148***	.0271**	.822***	.353***	.145**	.324***
	(.0178)	(.00472)	(.0107)	(.211)	(.0974)	(.0720)	(.105)
Observations	294	283	279	186	277	245	275

All regressions run by propensity score matching at the city level. Standard errors in parentheses. * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Matching variables are: ln(city population), % Protestant, % Jewish, % Blue Collar, as well as geographic longitude and latitude for each city, using the four closest matches. Column 4 uses ln(Jews'30) as an additional matching variable.

[$] First principal component (standardized) obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+*Stürmer* letters), and indicator variables for Synagogue damaged or destroyed.

Table 19: Dependent variable: % vote for DNVP in May 1924 election

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) ML[$]	(6) ME[#]	(7) GeoMatch[§]	(8)
Sample	Full		--- restricted ---				full	restr.
POG^{1349}	-.0324***	-.0216***	-.0381**	-.0283*	-.181*	-.0316**	-.0158**	-.0207
	(.00946)	(.00797)	(.0185)	(.0156)	(.100)	(.0159)	(.00725)	(.0182)
Controls	no	yes	no	yes	yes	(mv)		
Observations	1,137	1136	279	279	279	279	1,135	279
Adjusted R2	.007	.284	.018	.261				

Standard errors in parentheses, clustered at the precinct level (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Controls are the same, for each column, as in Table 8.

[$] Poisson maximum likelihood estimation.

[#] Matching estimation based on the full set of control variables in column (5). Treatment variable is Pogrom 1349. The average treatment effect is reported, using robust nearest neighbor estimation with the four closest matches. 'mv' indicates match variable.

[§] Matching estimation based on geography: Matching characteristics are geographic longitude and latitude for each city, using the two closest matches. Distance between each city and its two closest matches for columns (7) and (8) are respectively: median distance 10.4, 20.2; mean distance 20.8, 24.4.

Table 20: Extinction of Jewish communities in 1349, and full vs. restricted sample

Dep. Variable:	(1) 1920s pogroms	(2) NSDAP 1928	(3) DVFP 1924	(4) Depor-tations	(5) Stürmer letters	(6) Synagogue attacks	(7) Principal Component[$]
PANEL A: Cities without Jewish communities vs. cities with Jews and no pogroms in 1349							
POG^{1349}	.0640***	.0141***	.0320***	.0605	.217***	.0725***	.379***
	(.0187)	(.00428)	(.00820)	(.0843)	(.0634)	(.0242)	(.105)
Medieval Jewish Comm., no pogrom	-.00243	-.00203	.0106	-.173	-.0355	-.0260	-.0464
	(.0130)	(.00458)	(.0100)	(.123)	(.0761)	(.0524)	(.125)
ln(Pop)	.0181***	-.000498	-.00367	.110***	.267***	.0464***	.200***
	(.00548)	(.00120)	(.00223)	(.0307)	(.0199)	(.00655)	(.0433)
ln(# Jews '33)				.842***			
				(.0333)			
Additional Controls	no	yes	yes	no	no	no	yes
Observations	1,244	1,167	1,136	958	1,269	972	906
Adjusted R^2	.043	.081	.103	.664	.384	.056	.132
PANEL B: Extinction of Jewish communities in 1349							
Pogrom 1349, Comm. vanished	.0476**	.0148***	.0347***	.208**	.234***	.0822***	.389***
	(.0209)	(.00521)	(.00975)	(.0942)	(.0761)	(.0238)	(.122)
Pogrom 1349, Comm. survived	.0990***	.0131**	.0239*	-.149	.197**	.0619	.383**
	(.0377)	(.00661)	(.0129)	(.116)	(.0921)	(.0379)	(.172)
ln(Pop)	.0183***	-.000505	-.00385*	.105***	.265***	.0455***	.197***
	(.00548)	(.00121)	(.00226)	(.0306)	(.0194)	(.00636)	(.0425)
ln(# Jews '33)				.837***			
				(.0334)			
Additional Controls	no	yes	yes	no	no	no	yes
Observations	1,244	1,167	1,136	958	1,269	972	906
Adjusted R^2	.047	.080	.103	.665	.384	.056	.132

All regressions run by OLS at the city level for the full sample. Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. POG^{1349} takes the value 1 if a pogrom occurred in the years 1348-50, and 0 otherwise. Additional controls are: %Jewish, %Protestant, %Blue-Collar. Population is taken from the election data for the respective year in columns 1-3 (in columns 1, values from the May 1924 election are used). In columns 4-6, city population is from the 1933 census.

[$] First principal component (standardized) obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+*Stürmer* letters), and indicator variables for Synagogue damaged or destroyed.

Table 21: Cities with hotels prohibiting access to Jews and Pogroms in 1349

Panel A: All Cities

		Pogrom in 1349		
		No	Yes	Total
'No Jews'	No	979 93.2%	200 91.7%	1,179 92.9%
	Yes	72 6.8%	18 8.3%	90 7.1%
	Total	1,051	218	1,269

Panel B: Cities with Jews in 1348-50

		Pogrom in 1349		
		No	Yes	Total
'No Jews'	No	78 96.3%	200 91.7%	278 93%
	Yes	3 3.7%	18 8.3%	21 7%
	Total	81	218	299

Table 22: Cities with hotels prohibiting access to Jews and 20C anti-Semitism

Dep. Variable:	(1) 1920s pogroms	(2) NSDAP 1928	(3) DVFP 1924	(4) Depor-tations	(5) Stürmer letters	(6) Synagogue attacks	(7) Principal Component[$]
PANEL A: Full Sample							
'No Jews'	.0179	.00983*	.0261**	.00633	.0738	.0253	.266**
	(.0224)	(.00517)	(.0104)	(.106)	(.0755)	(.0381)	(.126)
ln(Pop)	.0203***	.0000318	-.00285	.174***	.275***	.0512***	.159***
	(.00535)	(.00122)	(.00254)	(.0227)	(.0166)	(.00564)	(.0435)
ln(# Jews '39)				.647***			
				(.0273)			
Observations	1,368	1,292	1,254	697	1,401	1,079	1,107
Adjusted R^2	.024	.002	.006	.754	.358	.050	.030
PANEL B: Restricted Sample							
'No Jews'	-.00448	.0209*	.0442*	.273*	.220	.0426	.499
	(.0526)	(.0117)	(.0263)	(.165)	(.148)	(.0441)	(.371)
ln(Pop)	.0394***	-.00246	-.000985	.197***	.406***	.0506***	.237***
	(.0134)	(.00231)	(.00463)	(.0591)	(.0316)	(.0104)	(.0735)
ln(# Jews '39)				.706***			
				(.0547)			
Observations	359	346	340	235	367	302	275
Adjusted R^2	.040	.008	.007	.802	.448	.070	.041

All regressions run by OLS at the city level for the full sample. Standard errors in parentheses (clustered at the precinct level). * $p < .10$, ** $p < .05$, *** $p < .01$. Population is taken from the election data for the respective year in columns 1-3 (in columns 1, values from the May 1924 election are used). In columns 4-6, city population is from the 1933 census.

[$] First principal component (standardized) obtained from: Pogrom 1920s, %DVFP votes 1924, %NSDAP votes 1928, ln(1+*Stürmer* letters), and indicator variables for Synagogue damaged or destroyed.